HCD-MD1EX

SERVICE MANUAL

Self Diagnosis Supported model

Ver 1.1 2001.02

US Model
Canadian Model
AEP Model
UK Model
E Model



HCD-MD1EX is the Amplifier, CD player, Mini disc Deck and Tuner section in CMT-MD1.

U.S. and foreign patents licensed form Dolby Laboratories Licensing Corporation.

CD Section	Model Name Using Similar Mechanism	HCD-MD333
	Base Unit Name	BU-22BD19
	Optical Pick-up Name	KSS-213B/K-N
MD Section	Model Name Using Similar Mechanism	HCD-MD333
	Mechanism Name	MDM-3J
	Optical Pick-up Name	KMS-260A/J1N

SPECIFICATIONS

Amplifier section

AUDIO POWER SPECIFICATIONS:
(USA models only)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

with 4 ohm loads both channels driven, from 90-15,000 Hz; rates 15 watts per channel minimum RMS power, with no more than 0.9% total harmonic distortion from 250 milliwatts to rated output.

Canadian model:
Continuous RMS power output
17 + 17 watts
(4 ohms at 1 kHz, 10% THD, 120 V) (Reference)

European model:
DIN power output (Rated)
15 + 15 watts
(4 ohms at 1 kHz, DIN, 230 V)
Continuous RMS power output (Reference)
17 + 17 watts
(4 ohms at 1 kHz, 10% THD, 230 V)
Music power output (Reference)
22 + 22 watts

Other models:
Continuous RMS power output (Reference)
15 + 15 watts
(4 ohms at 1 kHz, 10% THD, 240 V)
Peak music power output 280 watts

Inputs TAPE IN (phono jacks): voltage 250 mV/125 mV, impedance 47 kilohms
Outputs TAPE OUT (phono jacks): voltage 250 mV impedance 1 kilohms
PHONES (Stereo minijack): accepts headphones of 8 ohms or more.
SPEAKER: accepts impedance of 4 to 16 ohms.

– Continued on next page –

COMPACT Hi-Fi COMPONENT SYSTEM

9-922-950-12
2001B0500-1

Sony Corporation
Audio Entertainment Group
General Engineering Dept.

SONY®

CD player section

System	Compact disc and digital audio system
Laser	Semiconductor laser (λ=780 nm) Emission duration: continuous
Laser output	Max. 44.6 μW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Frequency response	20 Hz - 20 kHz

MD deck section

System	MiniDisc digital audio system
Laser	Semiconductor laser (λ=780 nm) Emission duration: continuous
Laser output	Max. 44.6 μW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture.
Recording time	74 minutes max. (using MDW-74)
Sampling frequency	44.1 kHz
Frequency response	20 Hz to 20 kHz

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5 - 108.0 MHz (50 kHz step)
Antenna	FM lead antenna
Antenna terminals	75 ohms unbalanced
Intermediate frequency	10.7 MHz

AM tuner section

Tuning range	
European model:	
AM:	531 - 1,602 kHz (with the interval set at 9 kHz)
Other models:	
AM:	531 - 1,602 kHz (with the interval set at 9 kHz) 530 - 1,710 kHz (with the interval set at 10 kHz)
Antenna	AM loop antenna External antenna terminals
Intermediate frequency	450 kHz

General

Power requirements	
North American model:	120 V AC, 60 Hz
European model:	230 V AC, 50/60 Hz
Other models:	110 - 120 V or 220 - 240 V AC, 50/60 Hz
Power consumption	
North American and European models:	70 watts
Other models:	80 watts
Dimensions	
Amplifier/Tuner/MD/CD section:	Approx. 130 × 215 × 245 mm (5 1/8 × 8 1/2 × 9 3/4 in) (w/h/d) incl. projecting parts and controls
Speaker:	Approx. 215 × 215 × 160 mm (8 1/2 × 8 1/2 × 6 3/8 in) (w/h/d) incl. projecting parts and controls
Mass	
Amplifier/Tuner/MD/CD section:	Approx. 4.6 kg (10 lb 2 oz.)

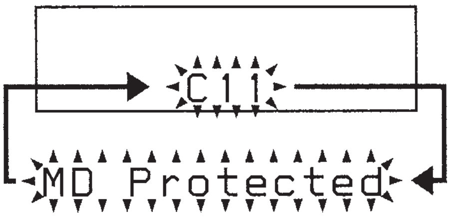
Design and specifications are subject to change without notice.

SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for users which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for users, refer to the following box in the instruction manual. For details on how to perform checks during servicing, refer to the following “Procedure for Using the Self-Diagnosis Function (Error History Display Mode)”.

Self-diagnosis Display

This system has the Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



C11/MD Protected

The MD is protected against erasure.
→Remove the MD and slide the tab to close the slot

C13/REC Error

Recording is not possible.
→Move the system to a stable place and start recording over from the beginning.
The MD is dirty or is scratched or the MD does not meet the standards.
→Change the MD with another one and start recording over from the beginning.

C13/Disc Error

The system cannot read the disc information correctly.
→Eject the MD once, then insert it again.

C14/Disc Error

The system cannot read the disc information correctly.
→Change the MD with another one.
→Erase all the recorded contents of the MD using the Erase function.

Procedure for Using the Self-Diagnosis Function (Error History Display Mode)

Note: Perform the self-diagnosis function in the “error history display mode” in the test mode. The following describes the least required steps. Be careful not to enter other modes by mistake. If other modes are set accidentally, press the [▶II (CD)] button to exit that mode.

1. With the power off, press the [⏮◀◀ ◀◀] button while pressing the [VOLUME–] button.
2. Press the [VOLUME+/–] button to display “ERR DP MODE”.
3. Pressing the [■ (CD)] button sets the error history mode and displays “total rec”.
4. Select the contents to be displayed or executed with pressing the [VOLUME+/–] button.
5. Pressing the [⏏ (CD)] button displays or executes the contents selected.
6. Pressing the [⏏ (CD)] button another time returns to step 4.
7. Pressing the [▶II (CD)] button displays “ERR DP MODE” and exits the error history mode.
8. To exit the test mode, press the [■ (MD)] button while pressing the [FUNCTION] button.
   The unit sets into the STANDBY state, and the test mode ends.

ITEM OF ERROR HISTORY MODE ITEMS AND CONTENTS

Selecting the Test Mode

Display	Details of History
total rec	Displays the recording time in the form of “r□□□□□□h”. The displayed time is the total number of hours the laser is high power, which is about one-fourth of the actual recording time. The time is displayed in decimal digits between 0h to 65535h.
total play	Displays the playback time in the form of “p□□□□□□h”. The displayed time is the total actual play time. The paused time is not counted. The time is displayed in decimal digits between 0h to 65535h.
retry err	Displays the total number of retries during recording and retry errors during playback in the form of “r□□p□□”. “r” indicates the retries during recording while “p” indicates the retry errors during playback. The number of retries is displayed in hexadecimal digits between 00 to FF.
total err	Displays the total number of errors in the form of “total □□”. The number of errors is displayed in hexadecimal digits between 00 to FF.
err history	Displays the 10 latest errors in the form of “0□ E@@”. The □ indicates the history number. The smaller the number, the newer is the error. (00 is the latest error.) The @@ indicates the error code. Refer to the following table for details. Press the [VOLUME+/–] button to switch the error history.
er refresh?	Mode which erases all the error histories. The error history serves as a reference for when to replace the optical pick-up. Perform this procedure when the optical pick-up has been replaced in order to erase past error histories and not at other times. Press the [■ (CD)] button when “er refresh??” is displayed. The history will be erased and “Complete!” will be displayed momentarily. Be sure to check the following when this mode has been executed. • Check that the data has been erased. • Perform recording and playback, and check that the mechanism operates normally.

Table of Error Codes

Error Code	Details of Error	Error Code	Details of Error
E00	No error	E05	FOK has deviated
E01	Disc error. Cannot read PTOC (Disc is ejected out)	E06	Unfocused (Servo has deviated)
		E07	Recording retry
E02	Disc error. UTOC error (Disc is not ejected out)	E08	Recording retry error
		E09	Play retry error (Access error)
E03	Loading error		
E04	Cannot read address (Servo has deviated)	E0A	Playback retry error (C2 error)

TABLE OF CONTENTS

SECTION 1
SERVICING NOTES

Flexible Circuit Board Repairing
- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Discard used batteries according to the manufacturer's instructions.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type
anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens
instruksjoner.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som
rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveforms is output three times.

Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Note:
Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY A ⚠ MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AUX COMPOSANTS RELATIFS ÀLA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES

SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VORSICHT : UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.

VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

VARNING : OSYNLING LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

VIGYAZAT! : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.
Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

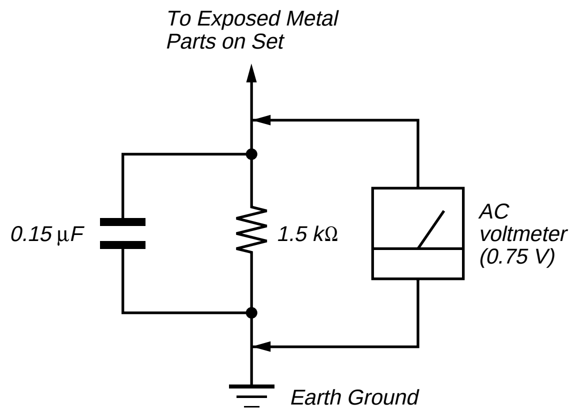
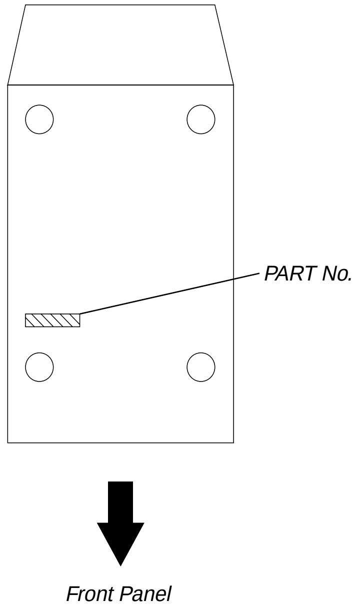


Fig. A. Using an AC voltmeter to check AC leakage.

MODEL IDENTIFICATION

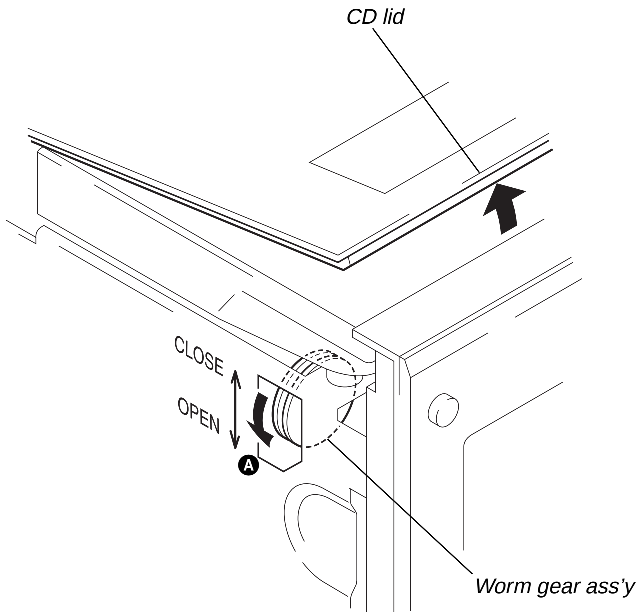
— Bottom view —



MODEL	PART No.
AEP and UK models	4-212-516-0☐
Singapore and Hong Kong models	4-212-516-1☐
US and Canadian models	4-212-516-3☐

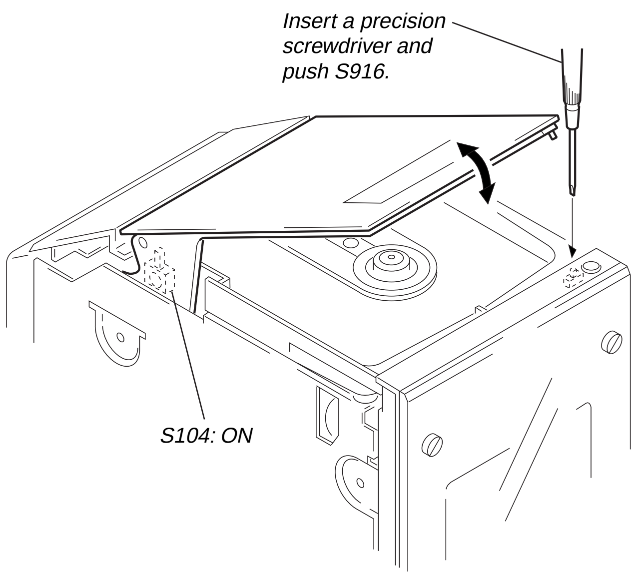
HOW TO OPEN THE CD LID

1. Remove Side panel (L), (R). (Refer to page 12)
2. Rotate the Worm gear ass'y to direction of the arrow Ⓐ.



LASER DIODE AND FOCUS SEARCH OPERATION CHECK

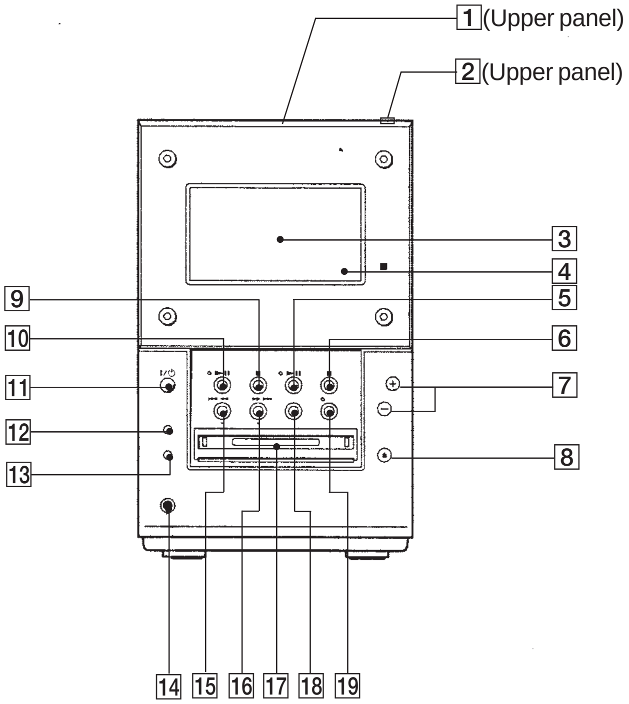
1. Open the CD lid.
2. Turn on S104 and S916 as following figure.
3. Confirm that the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down once for the focus search.



SECTION 2
GENERAL

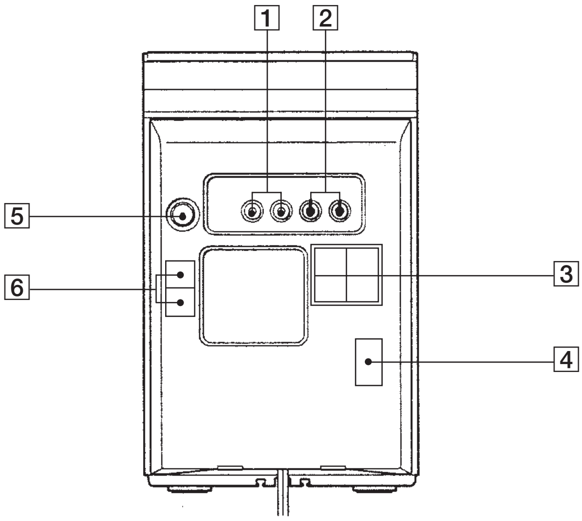
LOCATION OF CONTROLS

- **Front view**



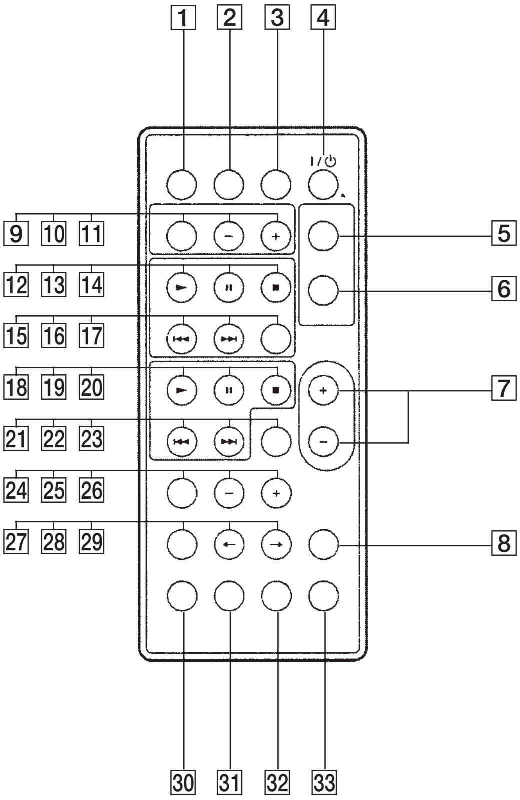
1 CD lid
2 ⏏ (CD) button
3 Display window
4 Remote sensor
5 MD ▶II button and indicator
6 MD ■ button
7 VOLUME +/– buttons
8 ⏏ (MD) button
9 CD ■ button
10 CD ▶II button and indicator
11 I/⏻ button
12 FUNCTION button
13 TUNER/BAND button
14 PHONES jack
15 I◀◀ ◀◀ button
16 ▶▶ ▶▶I button
17 MD disc slot
18 CD-MD SYNC button
19 REC button and indicator

- **Rear view**



1 TAPE OUT jacks
2 TAPE IN jacks
3 SPEAKER terminals
4 VOLTAGE SELECTOR switch (Singapore and Hong Kong models)
5 FM ANTENNA terminal
6 AM ANTENNA terminals

• **REMOTE CONTROLLER**



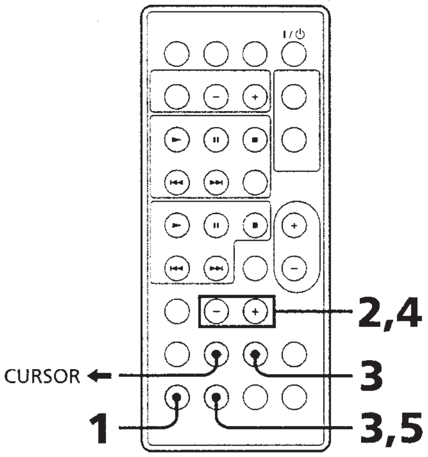
1 FUNCTION button
2 SLEEP button
3 CD, OPEN/CLOSE button
4 I/⏻ button
5 MODE, PLAY/TUNING button
6 REPEAT, STEREO/MONO button
7 VOL +/– buttons
8 DBFB button
9 BAND, TUNER button
10 –, PRESET button
11 +, PRESET button
12 MD ► button
13 MD ❚❚ button
14 MD ■ button
15 MD ⏮ button
16 MD ⏭ button
17 MD SCROLL button
18 CD ► button
19 CD ❚❚ button
20 CD ■ button
21 CD ⏮ button
22 CD ⏭ button
23 DISPLAY, CHARACTER button
24 EDIT button
25 – button
26 + button
27 SELECT, CLOCK/TIMER button
28 ←, CURSOR button
29 →, CURSOR button
30 SET, CLOCK/TIMER button
31 YES, ENTER button
32 NO, CANCEL button
33 MUSIC MENU button

This section is extracted from instruction manual.

Step 2: Setting the time

You must set the time before you use the timer functions.

The clock is on a 24-hour system for the European model, and a 12-hour system for other models.
The European model is used for illustration purpose.



1 Press CLOCK/TIMER SET while the power is off.
The clock appears and the hour indication flashes.

2 Press +/– to set the hour.



3 Press ENTER/YES or CURSOR ➡.
The minute indication flashes.



4 Press +/– to set the minute.

5 Press ENTER/YES.
The clock starts.

If you have made a mistake

Press CURSOR ⬅ or ➡ repeatedly so that the incorrect item flashes, then set it again.

To change the preset time

You can change the preset time while the power is on.

1 Press CLOCK/TIMER SET.
2 Press +/– repeatedly until "CLOCK SET ?" appears.
3 Press ENTER/YES.
4 Repeat steps 2 through 5.

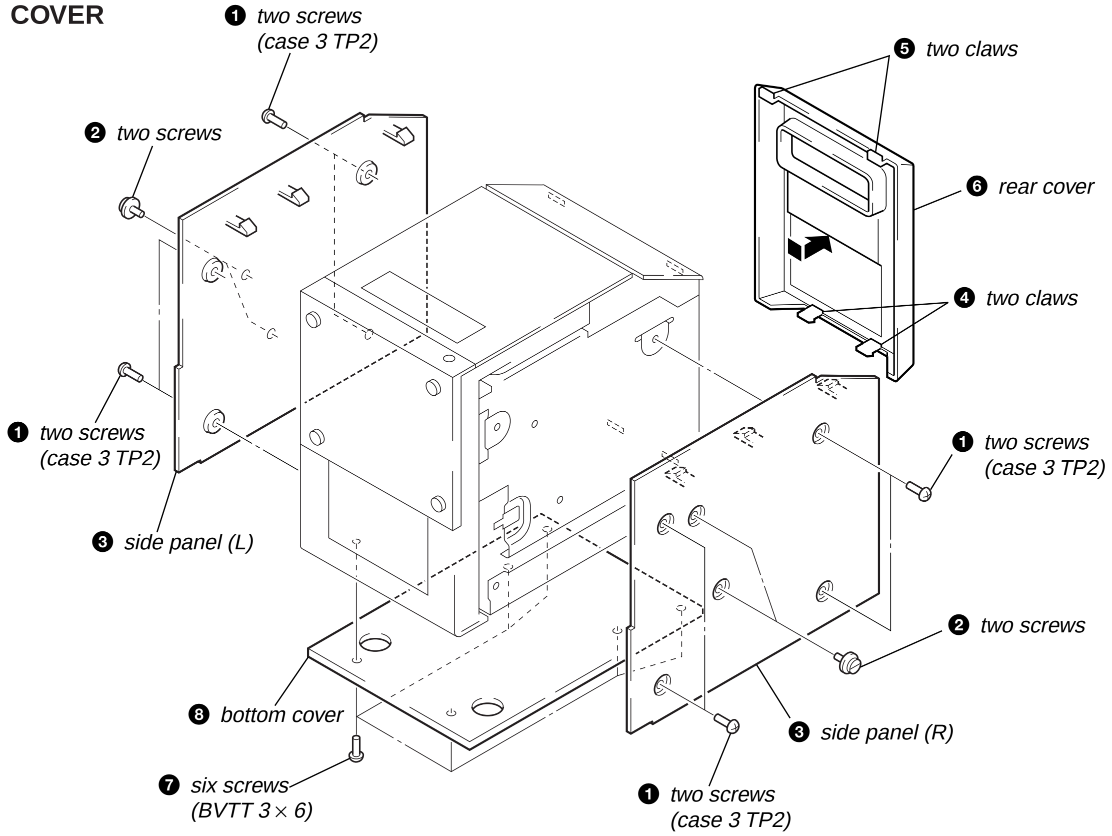
Tips

- The built-in clock shows the time in the display while the power is off.
- The upper dot flashes for the first half of a minute (0 to 29 seconds), and the lower dot flashes for the last half of a minute (30 to 59 seconds).

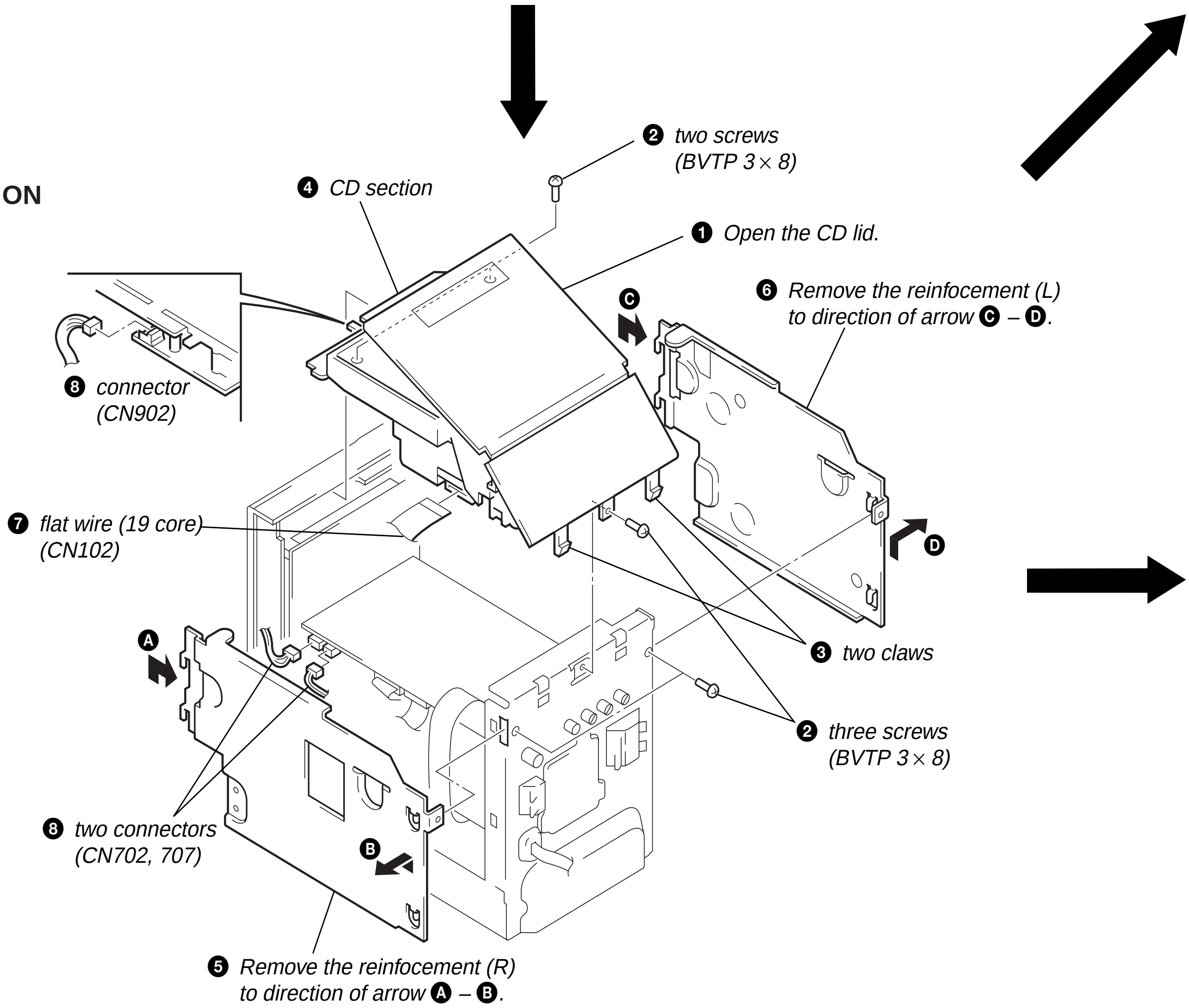
SECTION 3
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

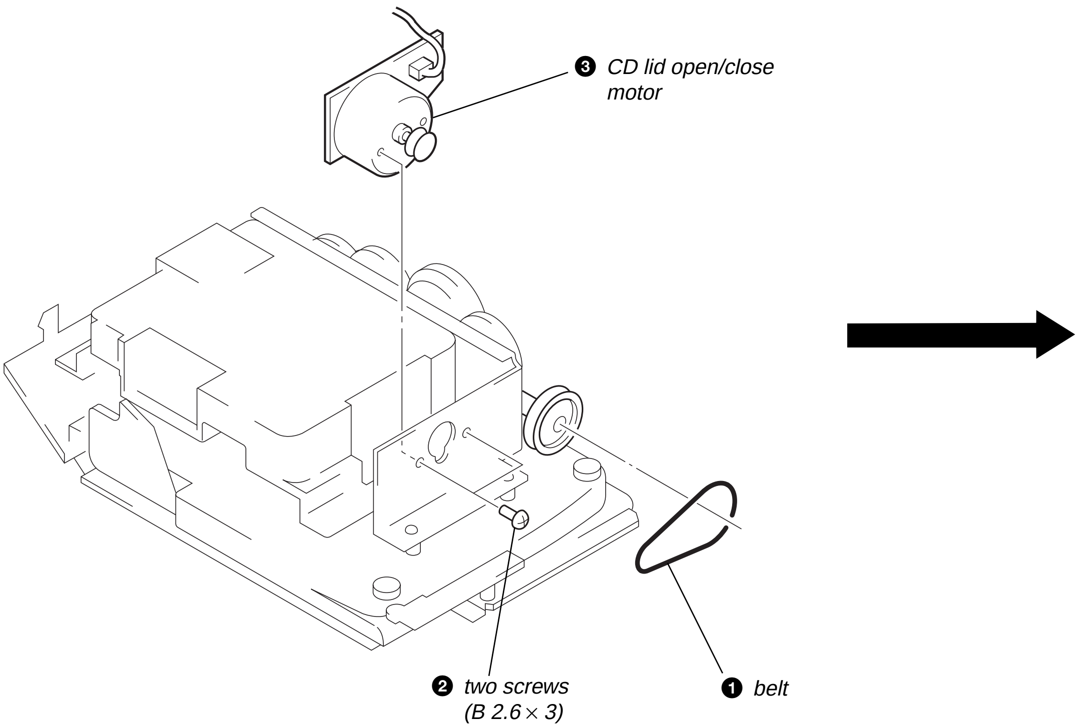
PANEL, COVER



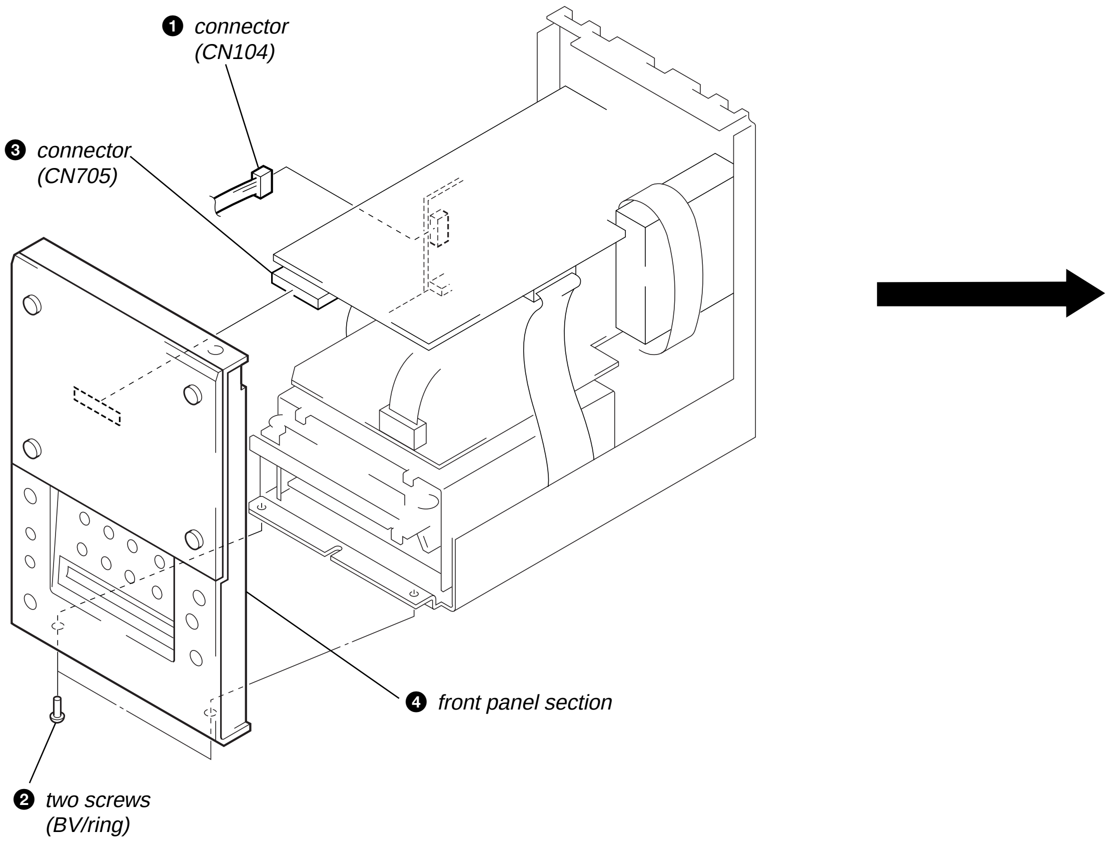
CD SECTION



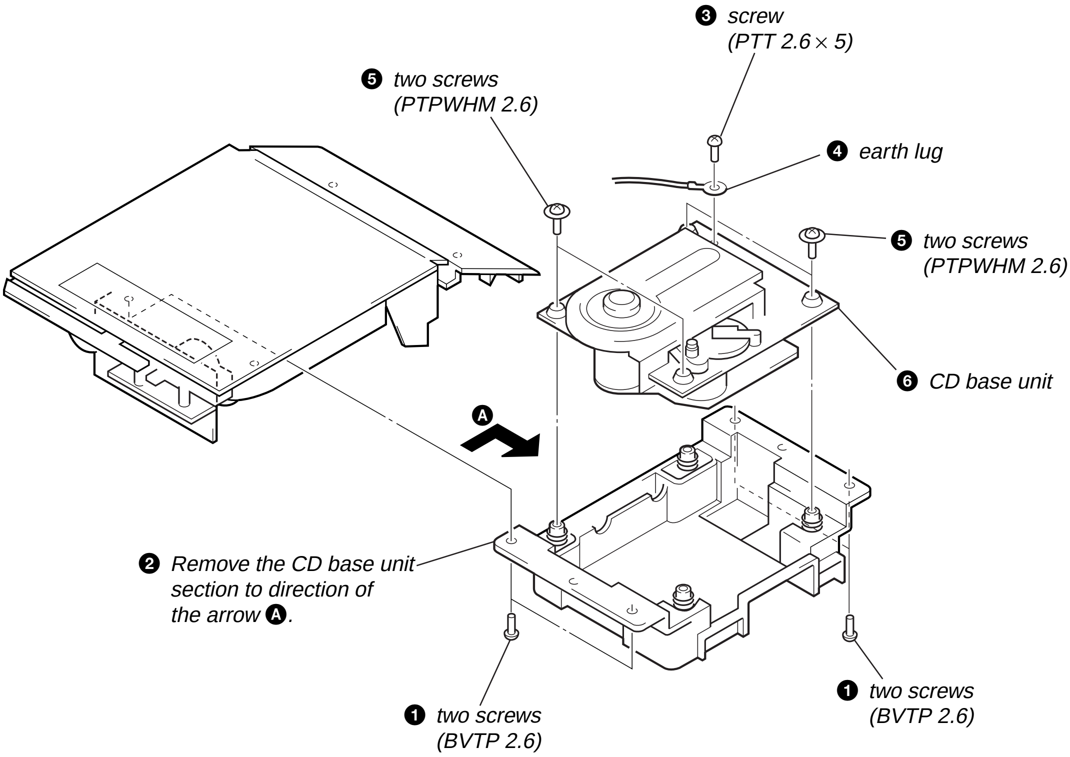
CD LID OPEN/CLOSE MOTOR



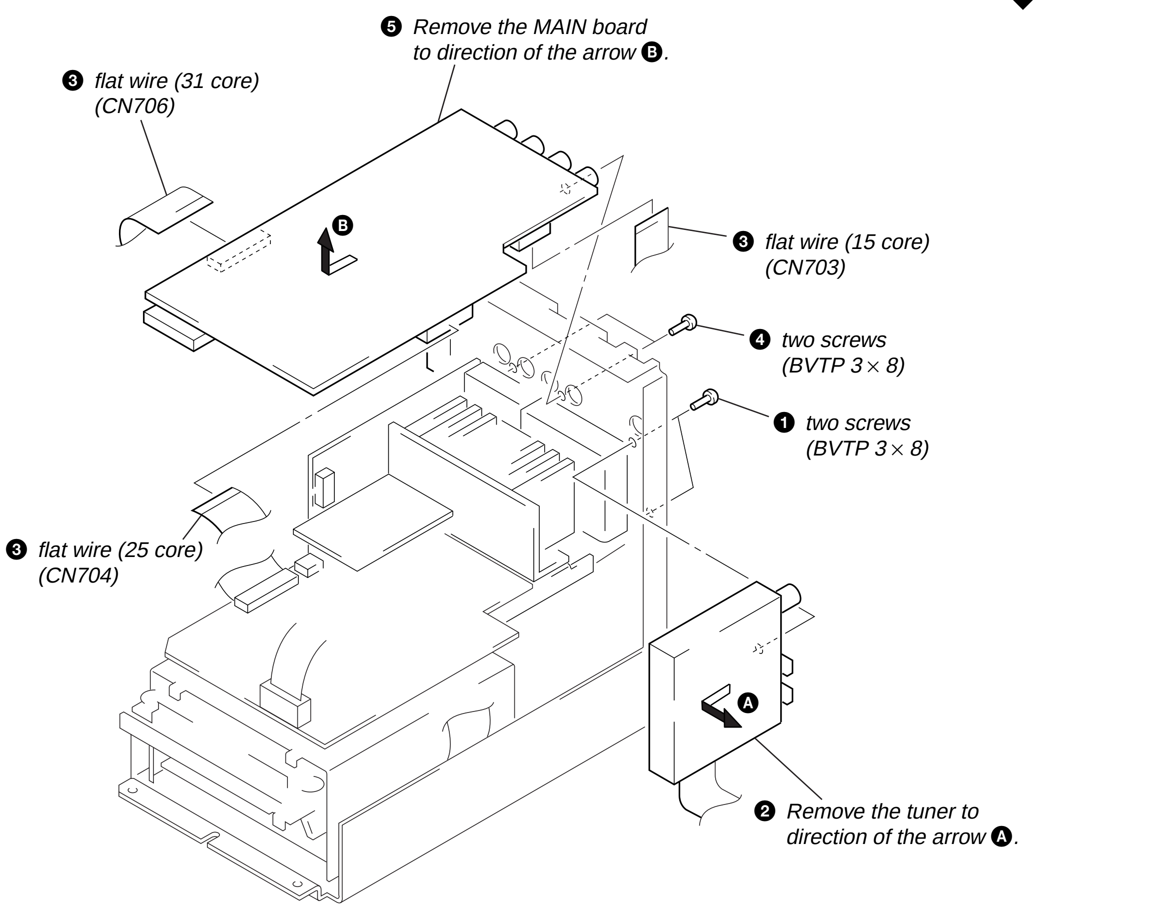
FRONT PANEL SECTION



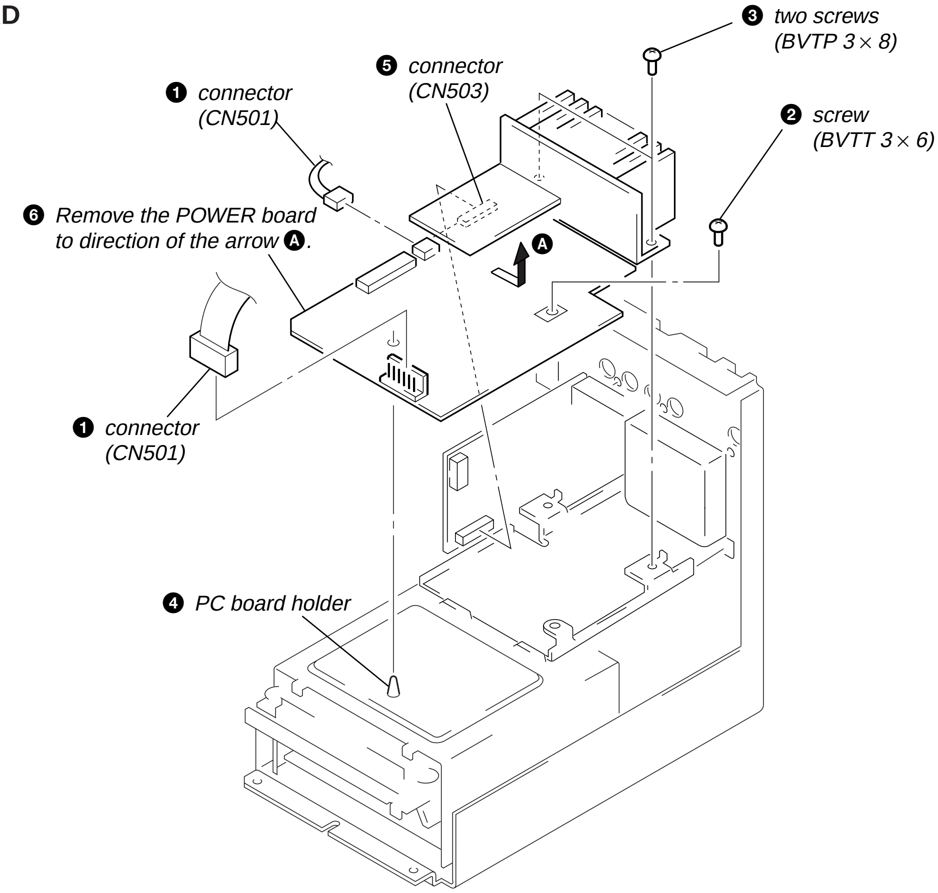
CD BASE UNIT



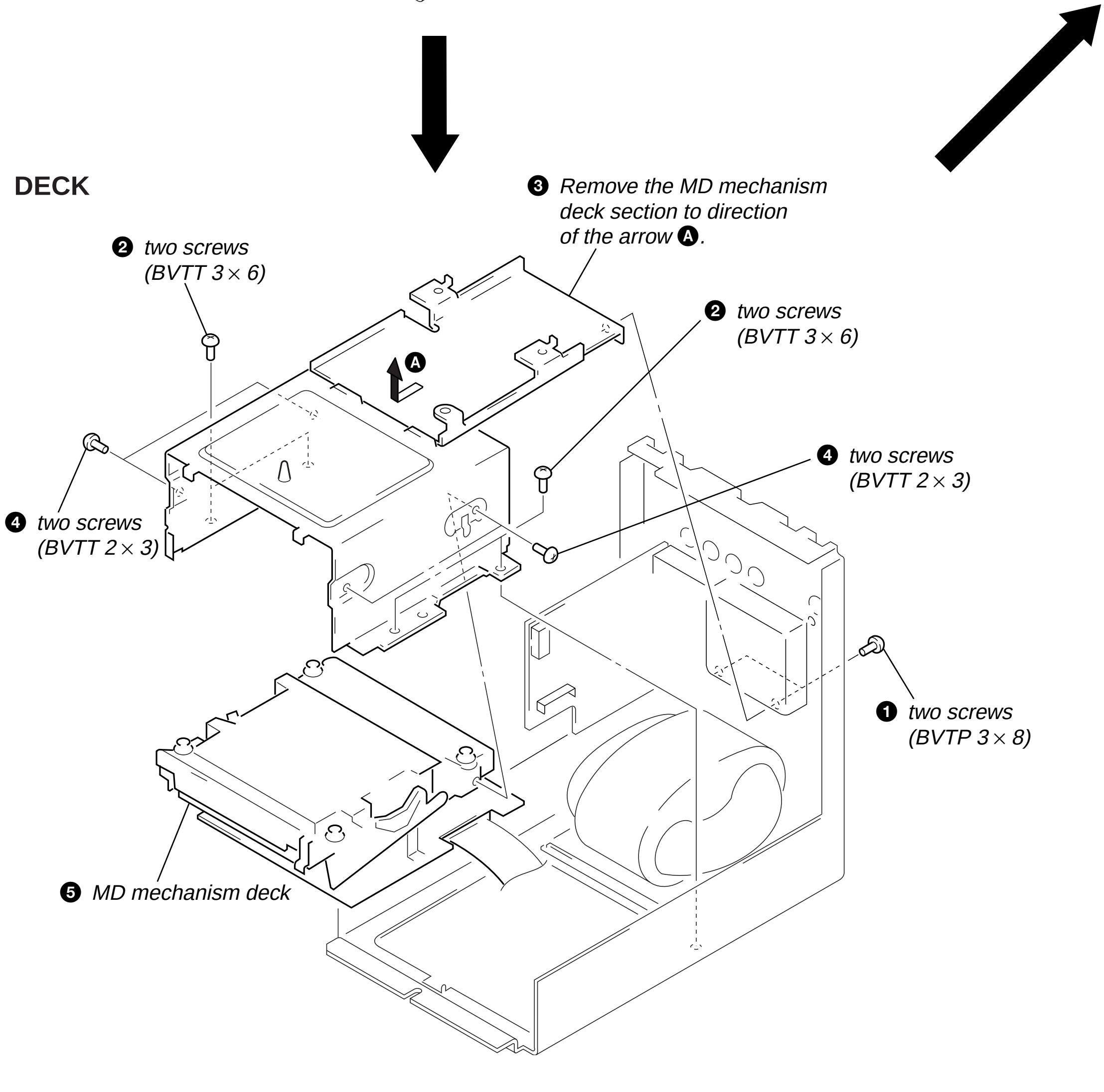
TUNER, MAIN BOARD



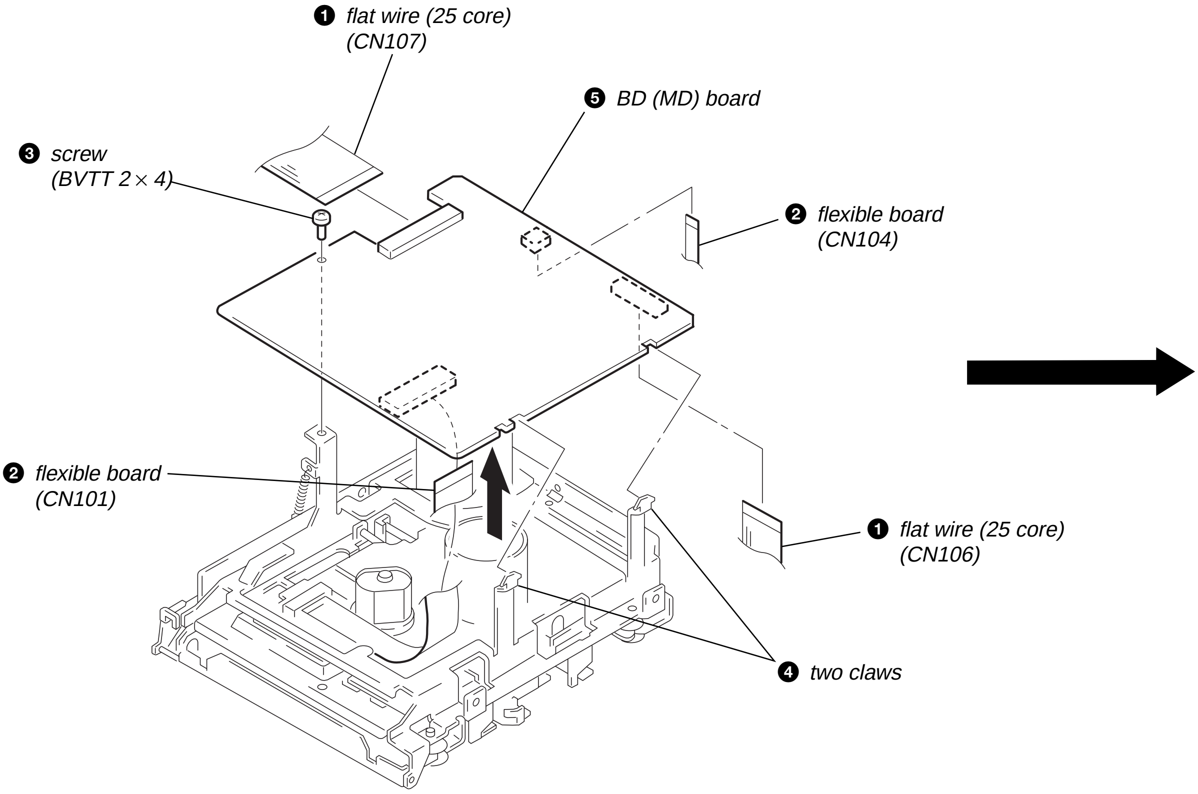
POWER BOARD



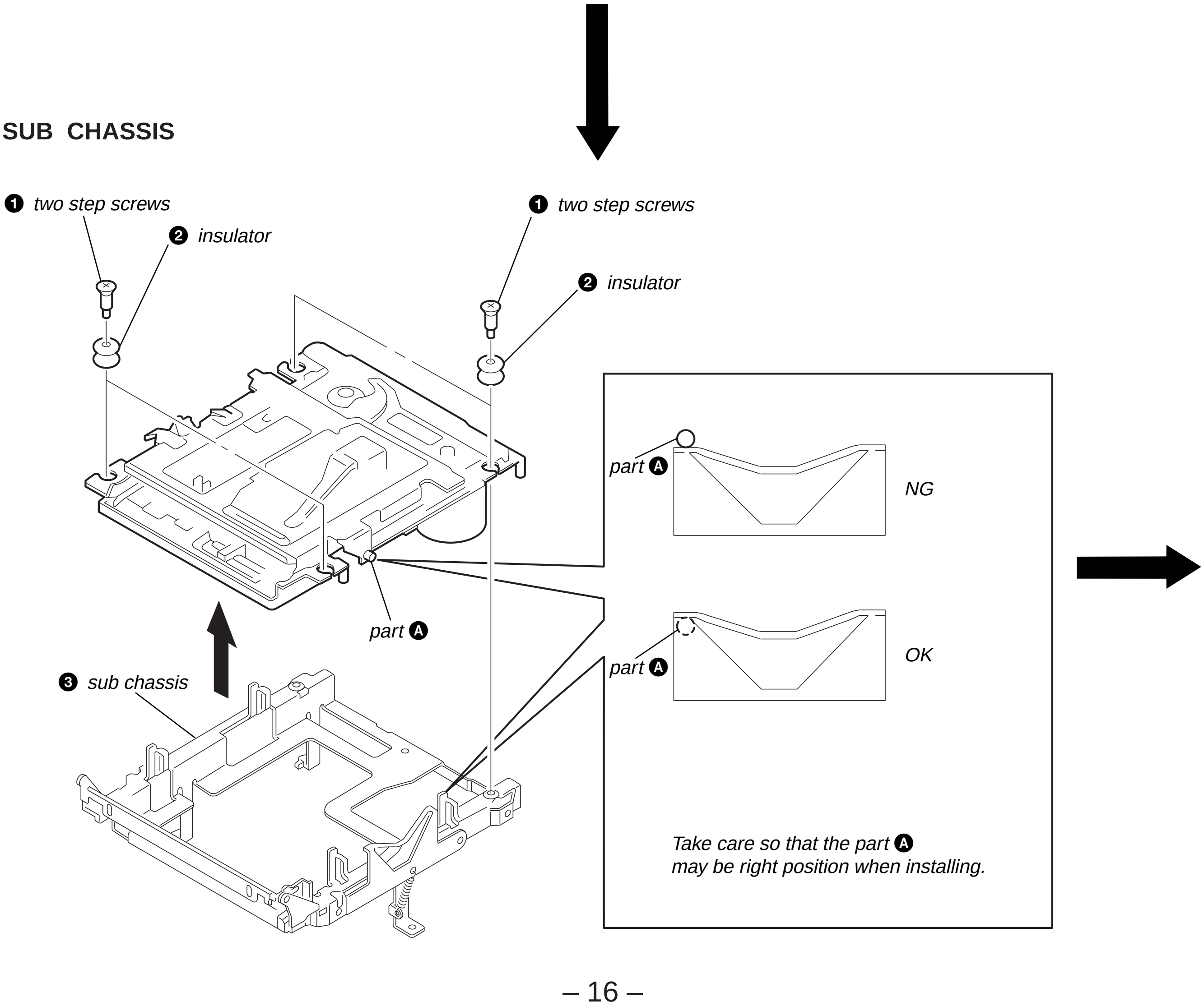
MD MECHANISM DECK



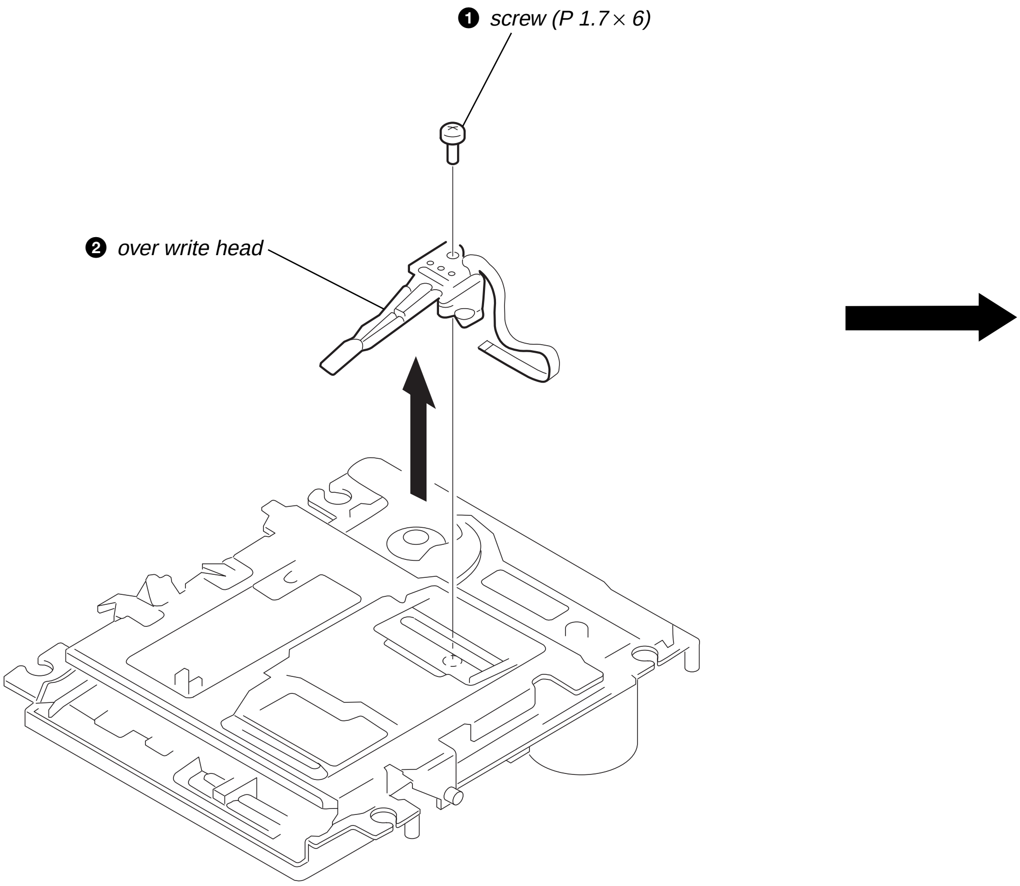
BD BOARD



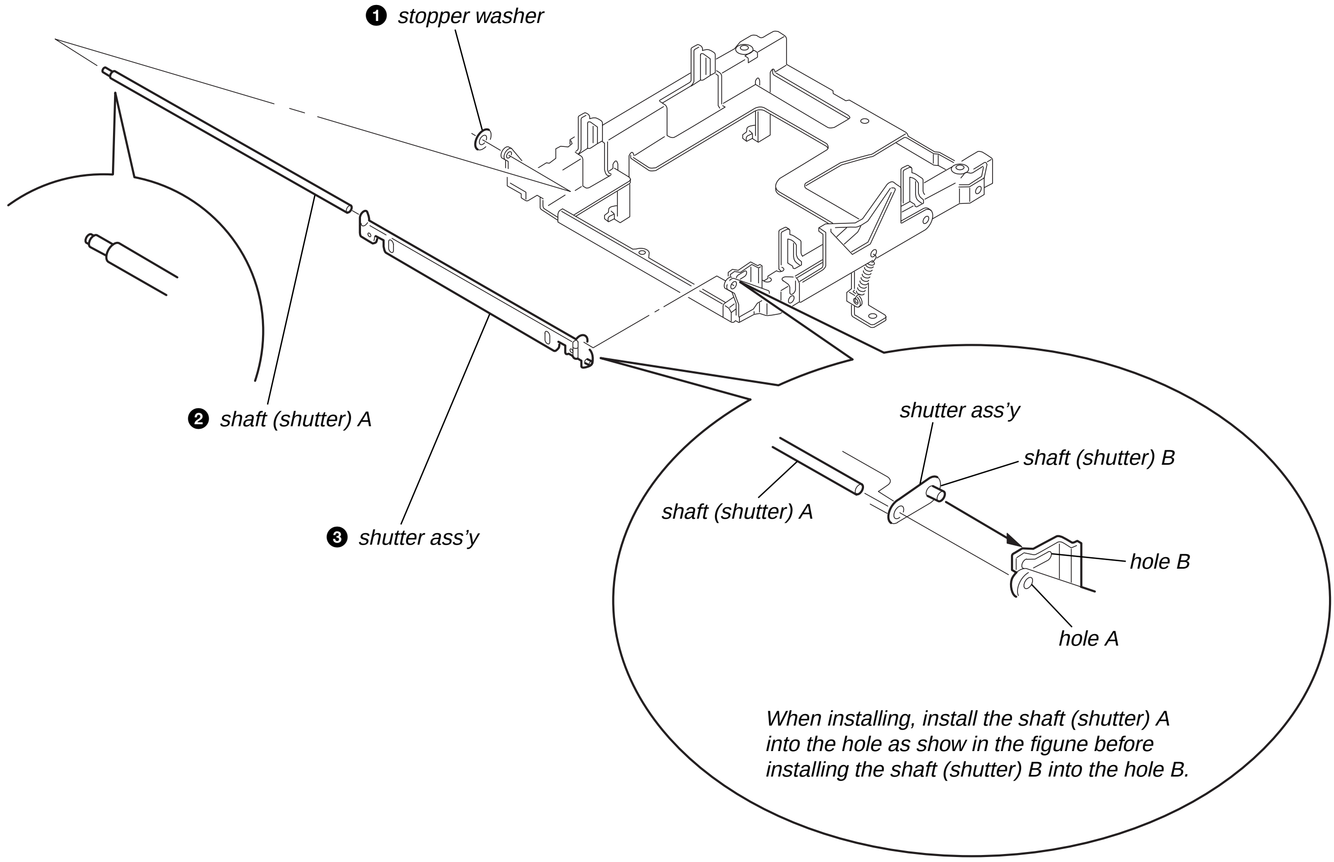
SUB CHASSIS



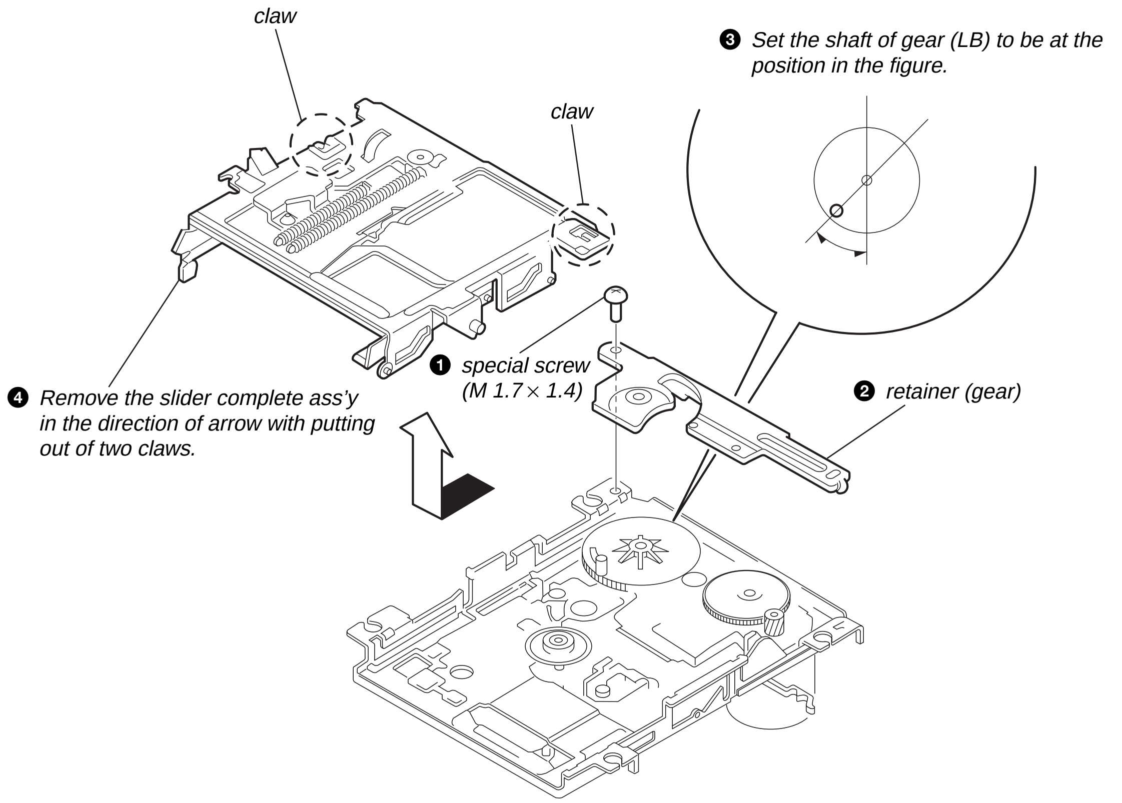
OVER WRITE HEAD



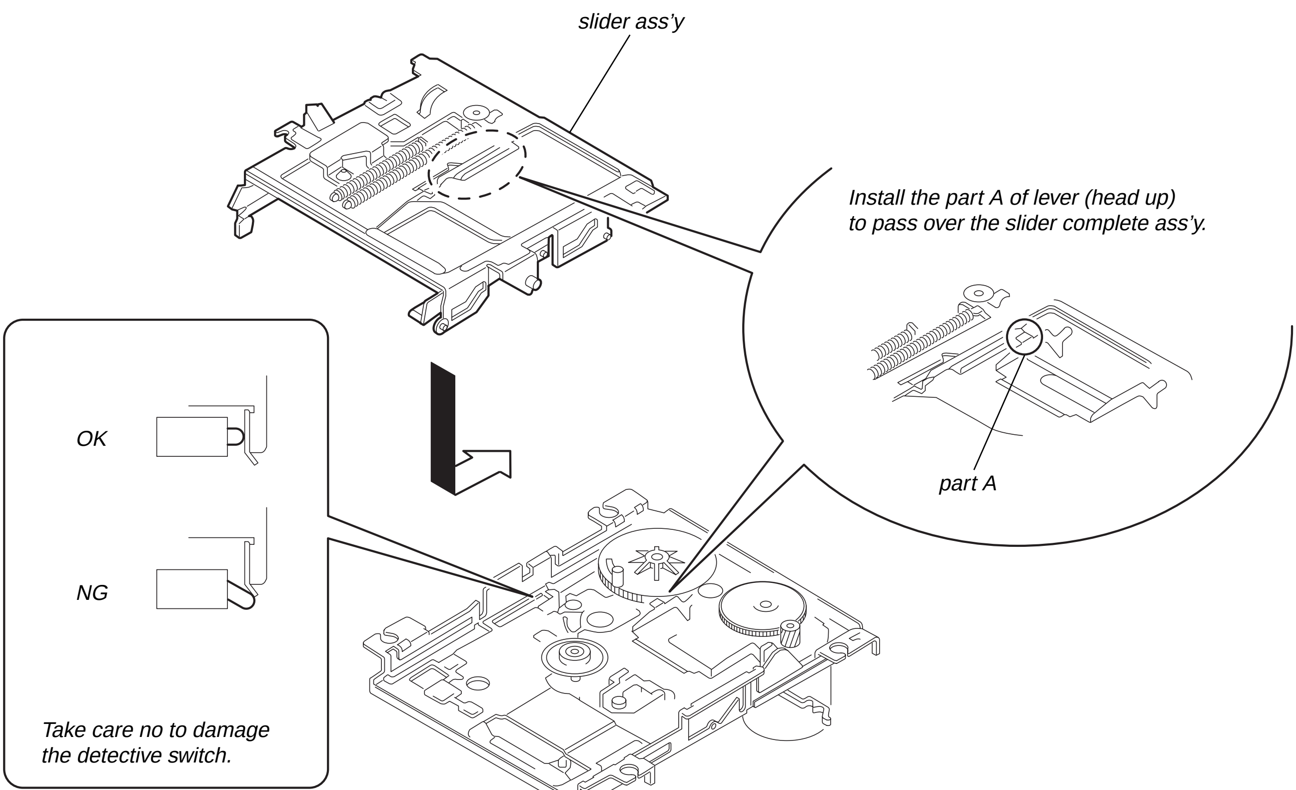
SHUTTER ASS'Y



SLIDER COMPLETE ASS'Y



NOTE FOR INSTALLATION
• SLIDER COMPLETE ASS'Y



SECTION 4
SERVICE MODE

Change-over of AM (MW) Tuner Step between 9 kHz and 10 kHz

- A step of AM (MW) channels can be changed over between 9 kHz and 10 kHz.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function “TUNER”, and press [TUNER/BAND] button to select the BAND “AM (MW)”.
3. Press [I/⏻] button to turn the set OFF.
4. Press [FUNCTION] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to “AM (MW) 9 kHz STEP” or “AM (MW) 10 kHz STEP”, and thus the channel step is changed over.

Change-over of LW Tuner Step between 1 kHz and 3 kHz

- A step of LW channels can be changed over between 1 kHz and 3 kHz.

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function “TUNER”, and press [TUNER/BAND] button to select the BAND “LW”.
3. Press [I/⏻] button to turn the set OFF.
4. Press [FUNCTION] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to “LW 1 kHz STEP” or “LW 3 kHz STEP”, and thus the channel step is changed over.

ATT Change-over of TAPE input

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function “TAPE”.
3. Press [I/⏻] button to turn the set OFF.
4. Press [I/⏻] button while pressing [FUNCTION] button. The power is turned on and the display of fluorescent indicator tube changes to “Attenuator ON” or “Attenuator OFF”, then ATT change-over of TAPE input is completed.

CD tracking balance display

Procedure:

1. Press [I/⏻] button to turn the set ON.
2. Select the function “CD”.
3. Press [TUNER/BAND] button while pressing [■ (CD)] button.
4. The display of fluorescent indicator tube shows you the following message.
   CD TR. BAL. ☐☐

LED and Fluorescent Indicator Tube All Lit, Key Check Mode

Procedure:

1. Press two buttons [VOLUME–] and [TUNER/BAND] simultaneously.
2. LEDs and fluorescent indicator tube are all turned on.
3. When the [FUNCTION] button is pressed, the fluorescent indicator tube lights up in the order of; partial lighting 1 → partial lighting 2 → all lit → partial lighting 1 →.
   When the [VOLUME+/–] button is pressed, the LED lighting pattern changes.
   To end without switching to the key check mode, press the [I/⏻] button to turn off the power.
4. Press [■ (CD)] button, and the key check mode is activated.
5. In the key check mode, the fluorescent indicator tube displays “KEY=0 JOG=0”. Each time a button is pressed, “KEY=” value increases. However, once a button is pressed, it is no longer taken into account.
   “JOG=” Value increases like 1, 2, 3 ... if press [VOLUME+] button, or it decreases like 99, 98, 97 ... if press [VOLUME–] button.
6. To exit from this mode, press order all buttons (13 buttons), and press any button, or disconnect the power cord.

SUB CLOCK CHECK

Procedure:

1. Connect an oscilloscope to IC707 pin ⑨① and ground of the MAIN board.
2. Press two buttons [VOLUME–] and [REC] simultaneously, and the fluorescent indicator tube displays “32.768 kHz (91)”.
3. To check the signal on oscilloscope becomes 32 kHz square wave.
4. Press [I/⏻] button to exit.

SECTION 5
TEST MODE

5-1. PRECAUTIONS FOR USE OF TEST MODE

Recording Laser Emission Mode

- Continuous recording mode (CREC MODE)
- Traverse adjustment mode (EFBAL ADJUST)
- Laser power adjustment mode (LDPWR ADJUST)
- Laser power check mode (LDPWR CHECK)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)

5-2. SETTING THE TEST MODE

With the power off, press the [⏮ ◀◀] button while pressing the [VOLUME–] button.

5-3. EXITING THE TEST MODE

Press the [■ (MD)] button while pressing the [FUNCTION] button. The STANDBY state will be set and the test mode will be cleared.

5-4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the [VOLUME+/–] button, [■ (CD)] button, and [▶II (CD)] button.
The functions of these buttons are as follows.

Function name	Function
VOLUME +/– button	Changes parameters and modes
■ (CD) button	Proceeds onto the next step. Finalizes input.
▶II (CD) button	Returns to previous step. Stops operations.

5-5. SELECTING THE TEST MODE

There are altogether 26 test modes, shown in the following table. Press the [VOLUME+] button to the mode below the current mode in the table while press the [VOLUME−] button to the mode above. Each time the [▶II (CD)] button is pressed, the display changes in the following order;

"TEMP CHECK" → "TEMP ADJUST" → "SLED MOVE" → "CPLAY 2 MODE" → "TEMP CHECK"…

Display	Contents	Mark
TEMP CHECK	Temperature compensation offset check	
LDPWR CHECK	Laser power check	
EF MO CHECK	Traverse (MO) check	
EF CD CHECK	Traverse (CD) check	
FBIAS CHECK	Focus bias check	
CPLAY MODE	Continuous playback mode	
CREC MODE	Continuous recording mode	
Scurve CHECK	S curve check	(X)
VERIFY MODE	Non-volatile memory check	(X)
DETRK CHECK	Detrack check	(X)
TEMP ADJUST	Temperature compensation offset adjustment	
LDPWR ADJUST	Laser power adjustment	
EF MO ADJUST	Traverse (MO) adjustment	
EF CD ADJUST	Traverse (CD) adjustment	
FBIAS ADJUST	Focus bias adjustment	
EEP MODE	Nonvolatile memory control	(X) (!)
MANUAL CMD	Command transfer	(X)
SVDATA READ	Status display	(X)
ERR DP MODE	Error history display, clear	
SLED MOVE	Sled check	(X)
ACCESS MODE	Access check	(X)
0920 CHECK	Outermost circumference check	(X)
WRITE sure?	Non-volatile memory Initialize	(X) (!)
HEAD ADJUST	Head position check	(X)
CPLAY2 MODE	Continuous playback mode	(X)
CREC2 MODE	Continuous recording mode	(X)

- For details of each adjustment mode, refer to the items in "6. Electrical Adjustments". For details of "ERR DP MODE", refer to the self-diagnosis function on page 2.
- If other modes are set accidentally, press the [▶II (CD)] button to exit that mode.
- As items marked (X) in the "Mark" column are not used during servicing, they are not described here. If these modes are set accidentally, press the [▶II (CD)] button to exit the mode. Be especially careful with items marked (!) as they will overwrite the non-volatile memory, and as a result, the unit will not operate normally.

5-5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   ① Set the disc in the unit. (Recordable discs or discs for playback only.)
   ② Press the [VOLUME+/−] button and display "CPLAY MODE".
   ③ Press the [■ (CD)] button to change the display to "CPLAY MID".
   ④ When access completes, the display changes to "C = ▯▯▯▯ AD = ▯▯".
   Note: The numbers "▯" displayed indicate the error rates and "ADER".

2. Changing the part to be played back
   ① When the [■ (CD)] button is pressed during continuous playback, the display changes as below, and the played back part can be changed.

   "CPLAY MID" → "CPLAY OUT" → "CPLAY IN" → (back to "CPLAY MID")

   ② When access completes, the display changes to "C = ▯▯▯▯ AD = ▯▯".
   Note: The numbers "▯" displayed indicate the error rate and "ADER".

3. Ending the continuous playback mode
   ① Press the [▶II (CD)] button. The display changes to "CPLAY MODE".
   ② Press the [⏏ (MD)] button to remove the disc.

Note: The playback start addresses for IN, MID, and OUT are as follows. To display the playback position address on the display, press the [I/⏻] button to display "CPLAY (□□□□)".

IN: 40h cluster
MID: 300h cluster
OUT: 700h cluster

5-5-2. Operating the Continuous Recording Mode

1. Entering the continuous recording mode
   ① Set a recordable disc in the unit. (Refer to Note 3.)
   ② Press the [VOLUME+/–] button and display "CREC MODE".
   ③ Press the [■ (CD)] button to change the display to "CREC MID".
   ④ When access completes, the display changes to "CREC (□□□□)" and the **REC** display lights up.

Note: The numbers "□" displayed indicate the recording position address.

2. Changing the part to be recorded
   ① When the [■ (CD)] button is pressed during continuous recording, the display changes as below and the recorded part can be changed. The **REC** display is off while changing.
   "CPLAY MID" → "CPLAY OUT" → "CPLAY IN" (→ back to "CPLAY MID")
   ② When access completes, the display changes to "CREC (□□□□)" and the **REC** display lights up.

Note: The numbers "□" displayed indicate the recording position address.

3. Ending the continuous recording mode
   ① Press the [▶II (CD)] button. The display changes to "CREC MODE", and the **REC** goes off.
   ② Press the [⏏ (MD)] button to remove the disc.

Note 1: The recording start addresses for IN, MID, and OUT are as follows.

IN: 40h cluster
MID: 300h cluster
OUT: 700h cluster

Note 2: The [▶II (CD)] button can be used to stop recording anytime.
Note 3: Do not perform continuous recording for long periods of time above 5 minutes.
Note 4: During continuous recording, be careful not to apply vibration.

5-5-3. Non-Volatile Memory Mode (EEP MODE)

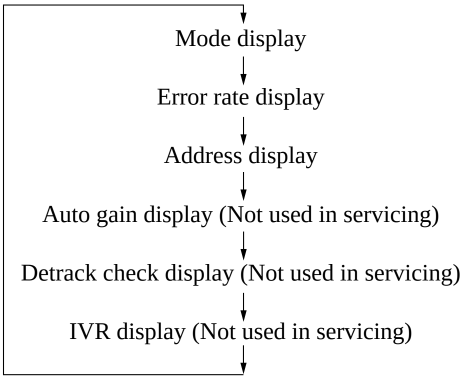
This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If set accidentally, press the [▶II (CD)] button immediately to exit it.

5-6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
▶II (MD)	Sets continuous playback when pressed in the STOP state. Turns ON/OFF the tracking servo when pressed during continuous playback.
■ (MD)	Stops the continuous playback and recording.
▶▶ ▶▶I	Moves the sled to the external circumference only while the button is pressed.
I◀◀ ◀◀	Moves the sled to the internal circumference only while the button is pressed.
CD-MD SYNC	Switches between pit and groove when pressed.
I/⏻	Switches the displayed contents when pressed.
⏏ (MD)	Ejects the disc.

5-7. DISPLAYS DURING TEST MODE

The display changes according to the following sequence each time the [I/⏻] button is pressed.



1. Mode display

"TEMP ADJUST" and "CPLAYMODE" are displayed.

2. Error rate display

The error rate is displayed as follows.

C = □□□□ AD = □□
C = :Indicates the C1 error.
AD = :Indicates ADER.

3. Address display

The address is displayed as follows. (MO: Recordable disc, CD: Disc for palyback only)
When the [CD-MD SYNC] button is pressed, the display will switch between groove and pit.

h = □□□□ s = □□□□ (MO pit and CD)
h = □□□□ a = □□□□ (MO groove)
h = Indicates the header address.
s = Indicates the SUBQ address.
a = Indicates the ADIP address.

Note: Displayed as "–" when servo is operated.

4. Auto gain display (Not used in servicing)

The auto gain is displayed as follows.

AG = □□ / □□ [□□]

5. Detrack check display (Not used in servicing)

The detrack is displayed as follows.

ADR = □□□□□□□□

6. IVR display (Not used in servicing)

IVR is displayed as follows.

[□□][□□][□□

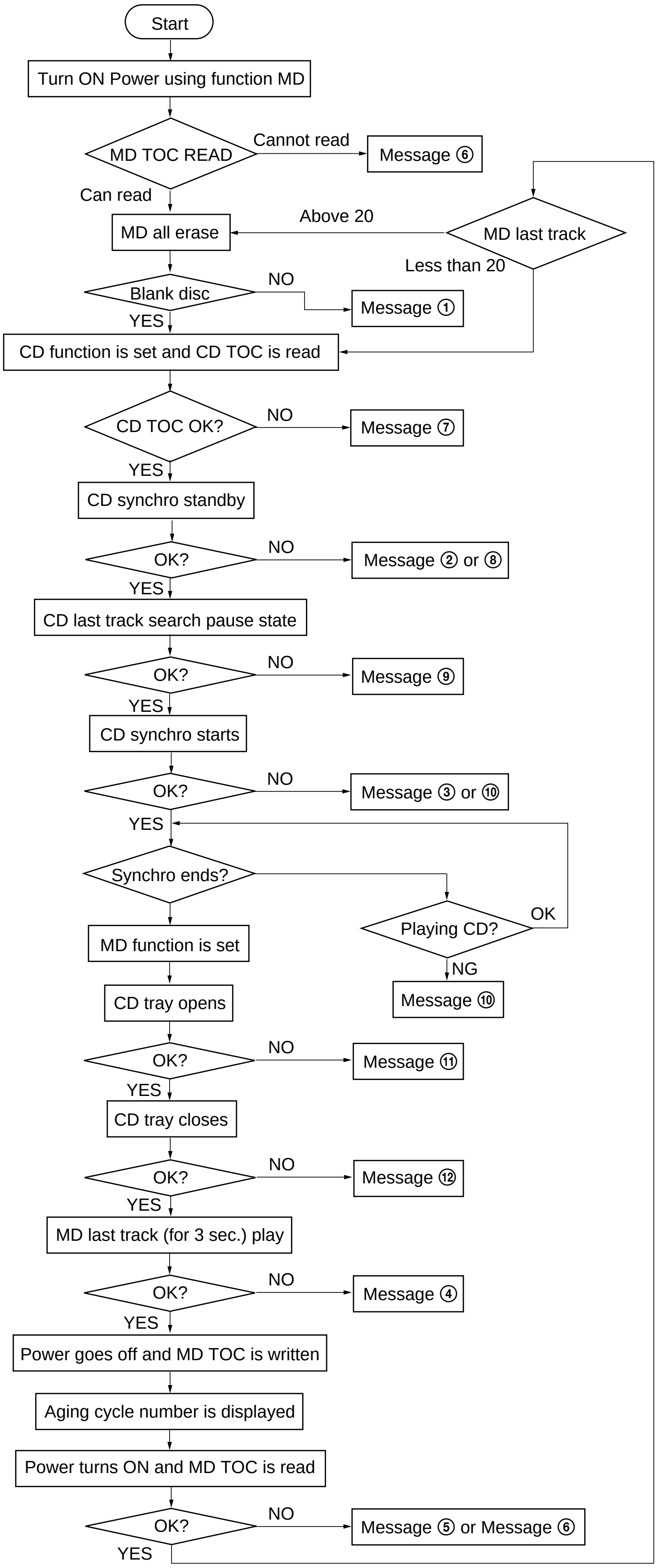
Meanings of other displays

Display	Contents	
	When Lit	When Off
REC	Recording mode ON	Recording mode OFF
ATT	ABCD adjustment completed	
SHUFFLE	Focus auto gain OK	
TRACK	Pit	Groove
DISC	High reflection rate	Low reflection
LEVEL-SYNC	CLV-S	CLV-A
SYNC	CLV LOCK	CLV UNLOCK

5-8. AGING MODE

This unit is provided with an aging mode.
In this mode, MD and CD operations are performed alternately according to the following sequence.
Aging will be carried out continuously unless an error occurs.
If an error occurs, the status and number of cycles are displayed alternately, and operations stop. (Refer to Table 1.)

Aging Mode Sequence



Procedure:
1. Load a recordable disc (MD) and CD test disc (YEDS-18). (*Note 1)
2. While pressing the [VOLUME–] button, press the [▶▶ ▶▶I] button.
3. Aging is executed in the above sequence.
4. To end, press the [■ (CD or MD)] button.

***Note 1:** Any CD can be used, but one with a short last track is recommended. The time of one aging cycle will be longer if the last track is long. Also use a CD in which the length of the last track x 20 does not exceed the recording time of the recording MD.

Table 1. Messages and Main Causes When Aging Stops

No.	Error Messages	Details of Error	Main Causes
①	MD A Erase NG	Cannot MD all erase.	A disc for playback only was used. The rec-proof tab is set to protect. Disc error, etc.
②	MD R-Pause NG	Cannot set MD Rec Pause.	Disc is full, etc.
③	MD D-input NG	Cannot lock MD digital in.	
④	MD Play NG	Cannot play last track.	Access error, etc.
⑤	MD TOC NG	MD TOC are different.	No. of total tracks does not match logic value.
⑥	MD No Disc NG	Cannot read MD TOC.	Disc error, etc.
⑦	CD No Disc NG	Cannot read CD TOC.	Optical defect, spindle defect (including motor), cannot read Q data, disc defect (scratches, etc.), bad focus, bad GFS, etc.
⑧	CD Pause NG	Cannot set CD pause in CD synchro mode.	Disc defect (scratches, etc.), cannot read Q data, etc.
⑨	CD Search NG	Cannot search last track on CD.	Optical defect, sled, tracking defect (including motor), cannot read Q data, disc defect (scratches, etc.).
⑩	CD Play NG	Cannot play last track on CD.	Optical defect, cannot read Q data, disc defect (scratches, etc.), etc.
⑪	CD Open NG	Cannot open CD tray.	LOAD OUT SW defect
⑫	CD Close NG	Cannot close CD tray.	LOAD IN SW defect

SECTION 6
ELECTRICAL ADJUSTMENTS

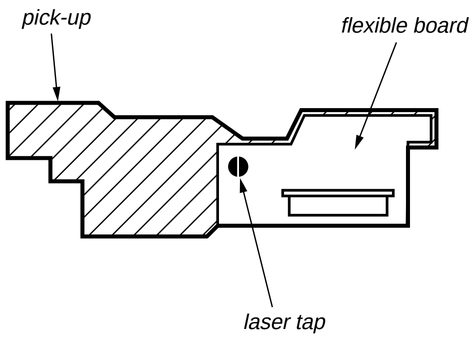
MD SECTION

6-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSINON

When checking the emission of the laser diode during adjustments, never view directly from the top as this may cause blindness.

6-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, solder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

6-3. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform adjustments and checks marked ○ in the order shown in the following table.

	Optical Pick-up	BD (MD) Board		
		IC171	D101	IC101, IC121, IC192
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	○	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

2) Perform the adjustment in the test mode.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - Check disc (MD) TDYS-1
     (Parts No. 4-963-646-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
     or
     MD Laser power meter 8010S (Parts No. J-2501-145-A)
   - Oscilloscope (Measure after calibration of the probe).
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope. (The VC and ground will short-circuit.)

Note: When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (J-2501-145-A) instead of the conventional laser power meter is convenient. It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of the pick-up.

6-4. CREATING THE CONTINUOUSLY RECORDED DISC

- The disc is used for the focus bias adjustment and error rate check.
  The following describes how to create a continuously recorded disc.

1. Insert a disc (blank disc) commercially available.
2. Press the [VOLUME+/–] button to display “CREC MODE”.
3. Press the [■ (CD)] button to display “CREC MID”.
   “CREC (0300)” will be momentarily displayed and recording started.
4. Complete recording within 5 minutes.
5. Press the [▶II (CD)] button and stop recording .
6. Press the [⏏ (MD)] button and remove the disc.

Create the continuous recorded disc for adjusting the focus bias and checking the error rate as described above.

Note:
- Be careful not to apply vibrations during continuous recording.

6-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the current temperature data in the non-volatile memory as the 25 °C standard data.

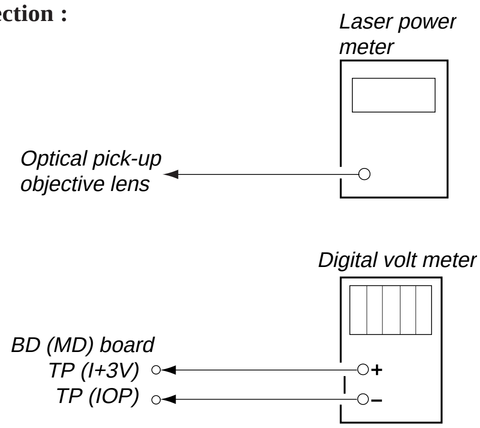
Notes:
1. Normally, this adjustment should not be preformed.
2. Set the surrounding temperature to 22 to 28 °C when performing this adjustment.
   Also perform this adjustment immediately after the power is turned on when the internal temperature of the unit is the same as the surrounding temperature (22 to 28 °C).
3. After replacing D101, perform this adjustment after the temperature of parts reach the surrounding temperature.

Adjusting Procedure:
1. Press the [VOLUME+/–] button, to display “TEMP ADJUST”.
2. Press the [■ (CD)] button and select the “TEMP ADJUST” mode.
3. “TEMP= □□ ” and the current temperature data are displayed.
4. To save the data: Press the [■ (CD)] button.
   If not saving the data: Press the [▶II (CD)] button.
5. When the [■ (CD)] button is pressed, “TEMP= □□ SAVE” is displayed, and then “TEMP ADJUST” is displayed again.
   “TEMP ADJUST” is displayed again immediately after the [▶II (CD)] button is pressed.

Specifications:
TEMP= □□ should be E0 to EF. F0 to FF, 00 to 0F, 10 to 1F and 20 to 2F.

6-6. LASER POWER ADJUSTMENT

Connection :



Adjusting Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up from the disc slot. (If it cannot be set properly, press the [|◀◀ ◀◀] or [▶▶ ▶▶|] button to move the optical pick-up).
   Connect the digital voltmeter to TP (I+3V) and TP (IOP) of the BD (MD) board.
2. Press the [VOLUME+/–] button to display "LDPWR ADJUST". (Laser power: For adjustment)
3. Press the [■ (CD)] button once to display "LD 0.9 mW $ ▯▯".
4. Press the [VOLUME+/–] button so that the laser power meter reads 0.86 to 0.92 mW. Set the range knob of the laser power meter to 10 mW, press the [■ (CD)] button, and save the adjustment results in the non-volatile memory. ("LD SAVE $ ▯▯" is displayed momentarily.)
5. "LD 7.0 mW $ ▯▯" is next displayed.
6. Press the [VOLUME+/–] button so that the laser power meter reads 6.9 to 7.1 mW, press the [■ (CD)] button, and save the adjustment results in the non-volatile memory. ("LD SAVE $ ▯▯" is displayed momentarily.)

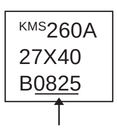
Note: Do not emit 7.0 mW continuously for more than 15 seconds.

7. Press the [VOLUME+/–] button to display "LDPWR CHECK".
8. Press the [■ (CD)] button once to display "LD 0.9 mW $ ▯▯".
   Check that the laser power meter reading is 0.85 to 0.91 mW.
9. Press the [■ (CD)] button another time to diaplay "LD 7.0 mW $ ▯▯".
   Check that the readings of the laser power meter and digital voltmeter become the specified value.

Specified Value :

Laser power meter reading : 7.0 ± 0.1 mW
Digital voltmeter reading : Value displayed on optical pick-up label ± 10%

(Optical pick-up label)

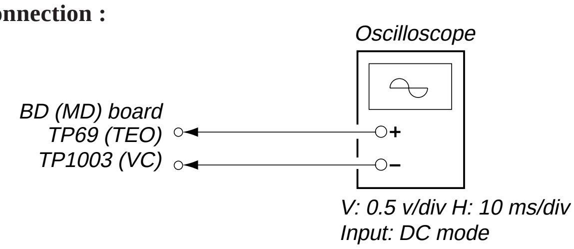


Iop = 82.5 mA in this case
Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

10. Press the [▶II (CD)] button to display "LDPWR CHECK" and stop the laser emission.
    (The [▶II (CD)] button is effective at all times to stop the laser emission.)

6-7. TRAVERSE ADJUSTMENT

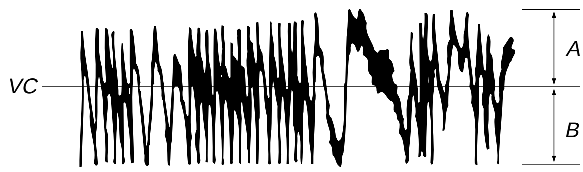
Connection :



Adjusting Procedure:

1. Connect an oscilloscope to TP69 (TEO) and TP1003 (VC) of the BD (MD) board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
3. Press the [|◀◀ ◀◀] or [▶▶ ▶▶|] button to move the optical pick-up outside the pit.
4. Press the [VOLUME+/–] button to display "EFBAL ADJUST".
5. Press the [■ (CD)] button to display "EFB = ▯▯ MO-R".
   (Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Press the [VOLUME+/–] button so that the oscilloscope waveform becomes the specified value. (Press the [VOLUME+/–] button changes the "EFB= ▯▯" value and the waveform.) The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.
   (Read power traverse adjustment)

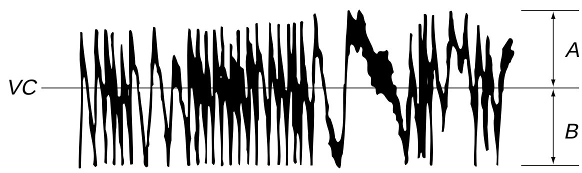
(Traverse Waveform)



Specified value : A = B

7. Press the [■ (CD)] button and save the adjustment results in the non-volatile memory (displayed as "EFB = ▯▯ SAVE" momentarliy and then displayed as "EFB = ▯▯ MO-W").
8. Press the [VOLUME+/–] button so that the oscilloscope waveform becomes the specified value.
   (Pressing the [VOLUME+/–] button changes the "EFB= ▯▯" value and the waveform.) The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.
   (Write Power Traverse Adjustment)

(Traverse Waveform)

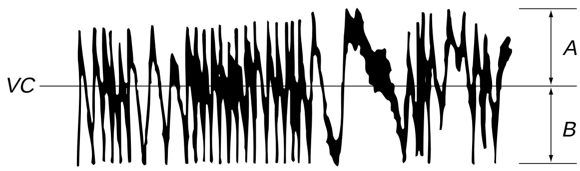


Specified value : A = B

9. Press the [■ (CD)] button to save the adjustment results in the non-volatile memory (displayed as "EFB = ▯▯ SAVE" momentarliy).

10. Next “EFB = □□ MO-P” is displaed, the optical pick-up moves to the internal circumference of the pit and servo is imposed.
11. Press the [VOLUME+/–] button so that the oscilloscope waveform becomes the specified value.
    The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.

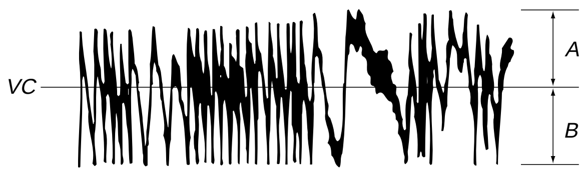
(Traverse Waveform)



Specified value : A = B

12. Press the [■ (CD)] button and save the adjustment results in the non-volatile memory (displayed as “EFB = □□ SAVE” momentarliy).
    “EFBAL: CD is next displayed and the disc stops rotating automatically.
13. Press the [⏏ (MD)] button and remove the disc.
14. Load the check disc (MD) TDYS-1.
15. Press the [■ (CD)] button to display “EFB = □□ CD”. The servo is imposed automatically.
16. Press the [VOLUME+/–] button so that the oscilloscope waveform becomes the specified value.
    The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.

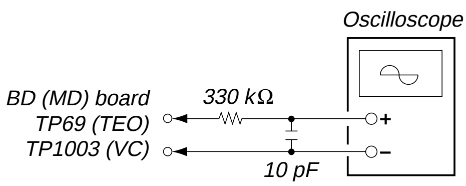
(Traverse Waveform)



Specified value : A = B

17. Press the [■ (CD)] button and save the adjustment results in the non-volatile memory after “EFB = □□ SAVE” is momentarliy displayed.
    “EFBAL ADJUST” is next displayed.
18. Press the [⏏ (MD)] button and remove the check disc (MD) TDYS-1.

Note 1: The data will be overwritten on the MO and erased when a recorded disc is used in this adjustment.
Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.

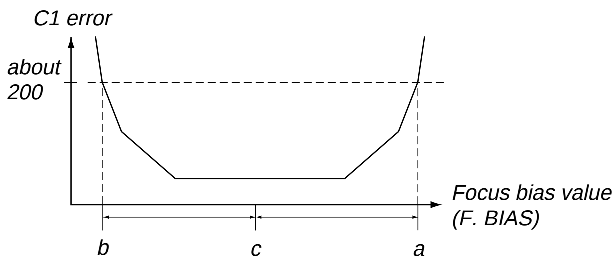


6-8. FOCUS BIAS ADJUSTMENT

Adjusting Procedure :

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Press the [VOLUME+/–] button and display “CPLAY MODE”.
3. Press the [■ (CD)] button to display “CPLAY MID”.
4. When “C = □□□□ AD = □□” is displayed, press the [►II (CD)] button.
5. Press the [VOLUME+/–] button to display “FBIAS ADJUST”.
6. Press the [■ (CD)] button to display “ □□□□/□□ a = □□”.
   The first four digits indicate the C1 error rate, the two digits after the “/” indicate ADER and the two digits after “a =” indicate the focus bias value.
7. Press the [VOLUME+/–] button, and look for the focus bias value at which the C1 error rate becomes approximately about 200. (Refer to Note 2).
8. Press the [■ (CD)] button to display “ □□□□/□□ b = □□”.
9. Press the [VOLUME+/–] button, and look for the focus bias value at which the C1 error rate becomes about 200.
   The C1 error rate at this time should be almost same as the value set in step 7.
10. Press the [■ (CD)] button to display “ □□□□/□□ c = □□”.
11. Check that the C1 error rate is below 50 and that ADER is 00. and press the [■ (CD)] button.
12. If the value of “(□□)” in the “□□ - □□ - □□ (□□)” displayed is above 20, press the [■ (CD)] button.
    If below, press the [►II (CD)] button and start from step 2 again.
13. Press the [⏏ (MD)] button and remove the continuously recorded disc.

Note 1: The following figure shows the relation between the C1 error and focus bias value. Look for points a and b in the following figure by the adjustment avove. The focus position (point c) is automatically calculated from points a and b.
Note 2: As the C1 error rate changes, use the average value in the adjustment.



6-9. ERROR RATE CHECK

6-9-1. CD Error Rate Check

Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Press the VOLUME+/– button to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. “C = □□□□ AD = □□” is displayed.
5. Check that the C1 error rate is below 20.
6. Press the ▶II (CD) button to stop playback. Then press the ⏏ (MD) button, and remove the check disc (MD).

6-9-2. MO Error Rate Checking

Checking Procedure :

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Press the VOLUME+/– button to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. “C = □□□□ AD = □□” is displayed.
5. Check that the C1 error rate is below 50 and ADER is 00.
6. Press the ▶II (CD) button to stop playback. Then press the ⏏ (MD) button, and remove the disc.

6-10. FOCUS BIAS CHECK

Change the focus bias value and check the focus tolerance amount.

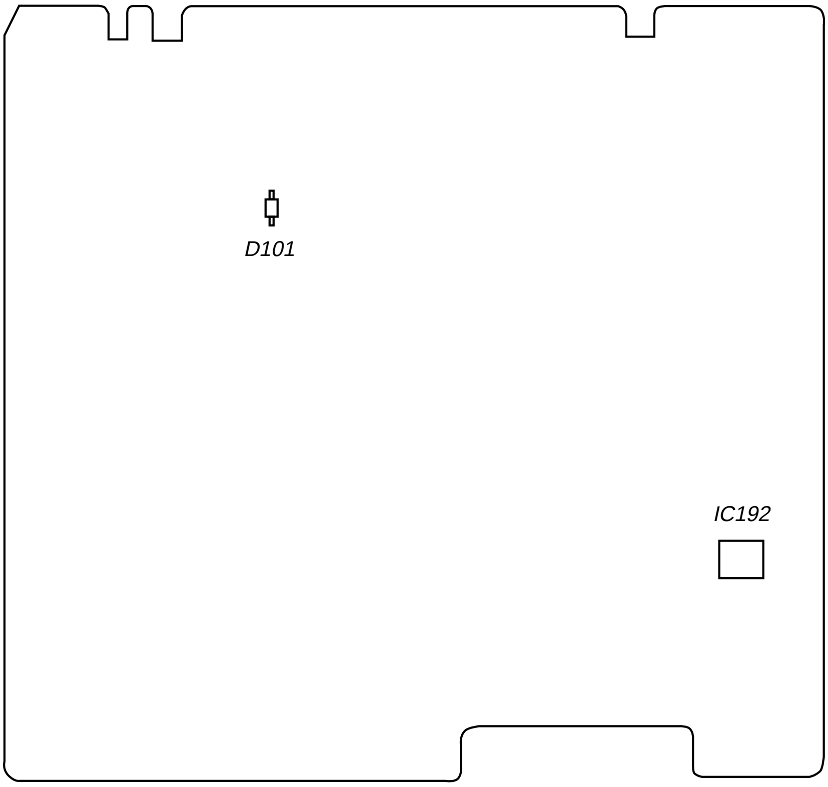
Checking Procedure :

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Press the VOLUME+/– button to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. When “C = □□□□ AD = □□” is displayed, press the ▶II (CD) button.
5. Press the VOLUME+/– button to display “FBIAS CHECK”.
6. Press the ■ (CD) button to display “ □□□□/□□ c = □□”.
   The first four digits indicate the C1 error, the two digits after the “/” indicate ADER and the two digits after “c =” indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the ■ (CD) button to change the display to “ □□□□/□□ b = □□”.
   Check that the C1 error does not drop below about 200 and ADER does not remain above 00.
8. Press the ■ (CD) button to change the display to “ □□□□/□□ a = □□”.
   Check that the C1 error does not drop below about 200 and ADER does not remain above 00.
9. Press the ▶II (CD) button, press the ⏏ (MD) button next, and remove the continuously recorded disc.

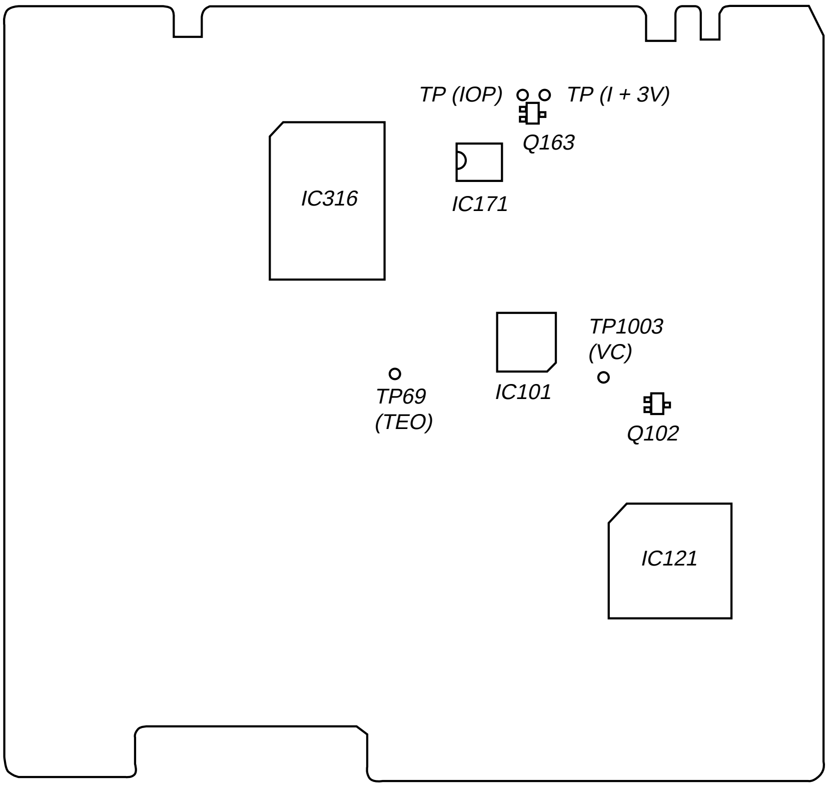
Note 1: If the C1 error is above about 200 or ADER is above 00 only for point a (step 8 above) and point b (step 7 above), the focus bias may not adjusted properly. In this case, adjust again.

6-11. ADJUSTING POINTS AND CONNECTING POINTS

[BD (MD) Board] (Side A)



[BD (MD) Board] (Side B)

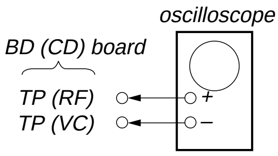


CD SECTION

Note:
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10 MΩ impedance.
4. Clean the object lens by an applicator with lens cleaning liquid when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical block is replaced.

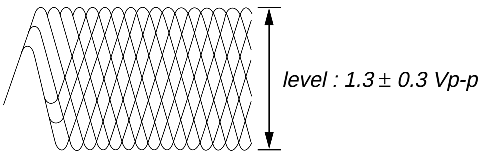
Focus Bias Adjustment

Perform this adjustment when the optical pick-up has been replaced or repaired.

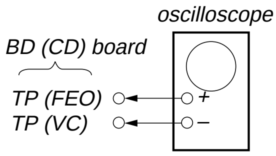


Procedure:
1. Connect oscilloscope to test point TP (RF).
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Adjust RV101 so that the waveform is clear.
   (Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.)
5. After adjustment, check the RF signal level.

• RF signal
  VOLT/DIV: 200 mV
  TIME/DIV: 500 nS

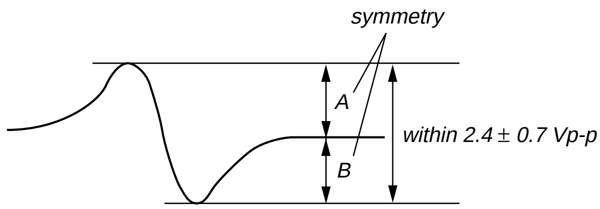


S Curve Check



Procedure :
1. Connect oscilloscope to test point TP (FEO).
2. Connect between test point TP (FOK) and Ground by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4 ± 0.7 Vp-p.

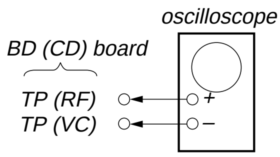
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note: • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

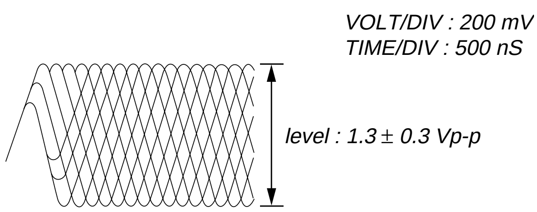
RF Level Check



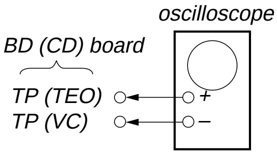
Procedure :
1. Connect oscilloscope to test point TP (RF) on BD (CD) board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform



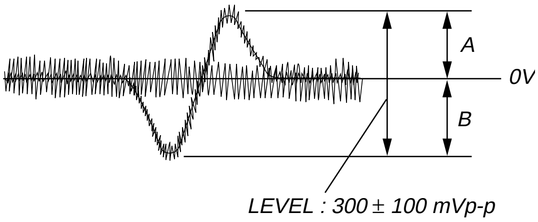
E-F Balance (1 Track Jump) Check
(Without remote commander)



Procedure :

1. Connect oscilloscpe to test point TP (TEO) on BD (CD) board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Press the “ ►II (CD) (Pause)” button. (Becomes the 1 track jump mode)
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.

1 track jump waveform



Specified level: • $\frac{A - B}{2\,(A + B)}$ x 100 = less than ± 7%

• A + B = 300 ± 100 mVp-p

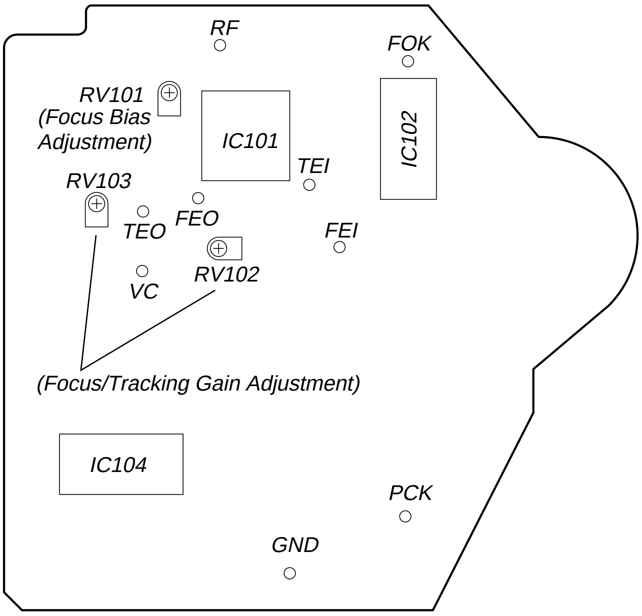
6. Remove the lead wire connected in step 1.

Focus/Tracking Gain Adjustment (RV102, RV103)

This gain has a margin, so even if it is slightly off.
There is no problem.
Therfore, do not perform this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

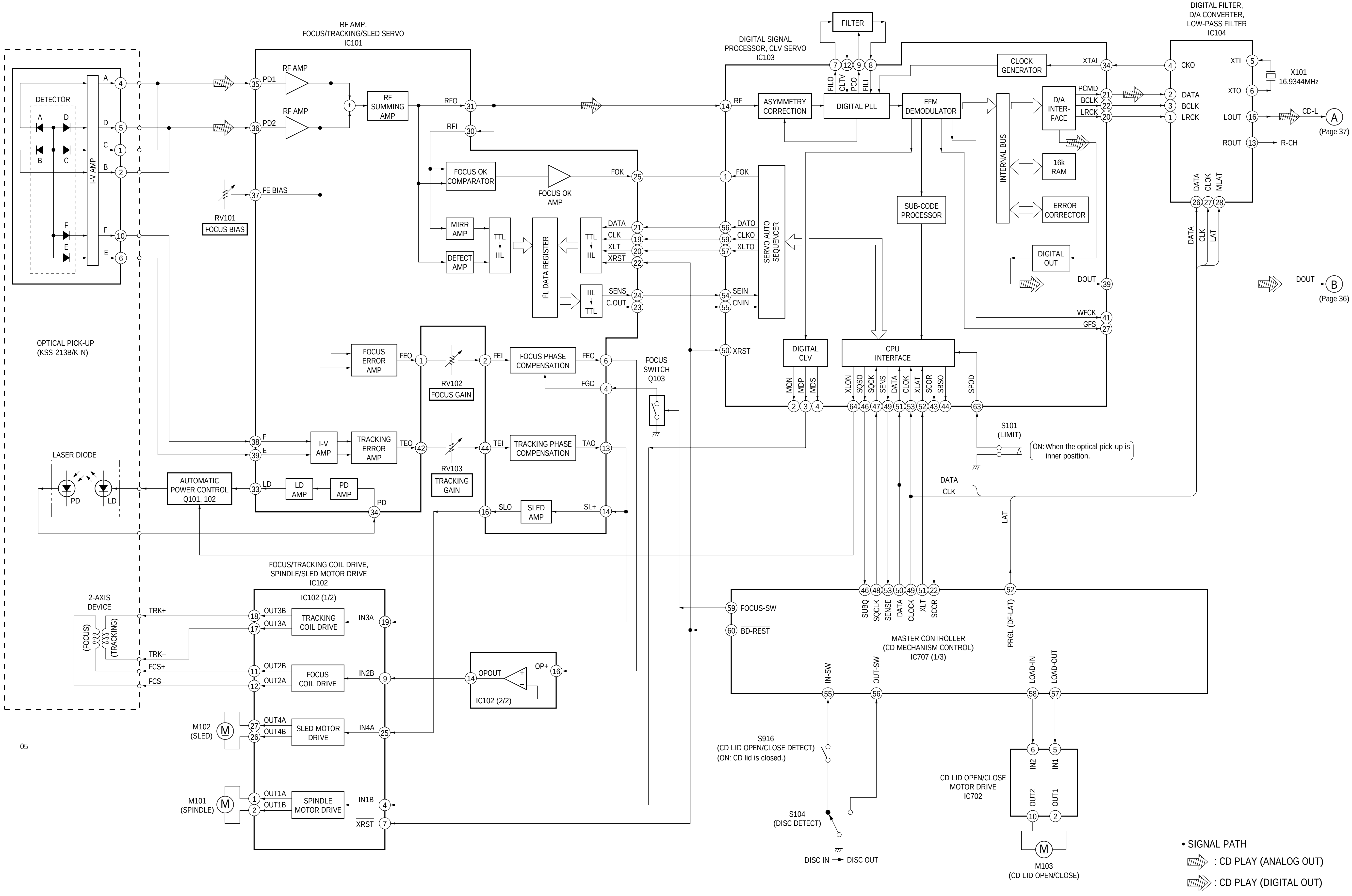
Adjustment Location:

[BD (CD) Board] (Side B)

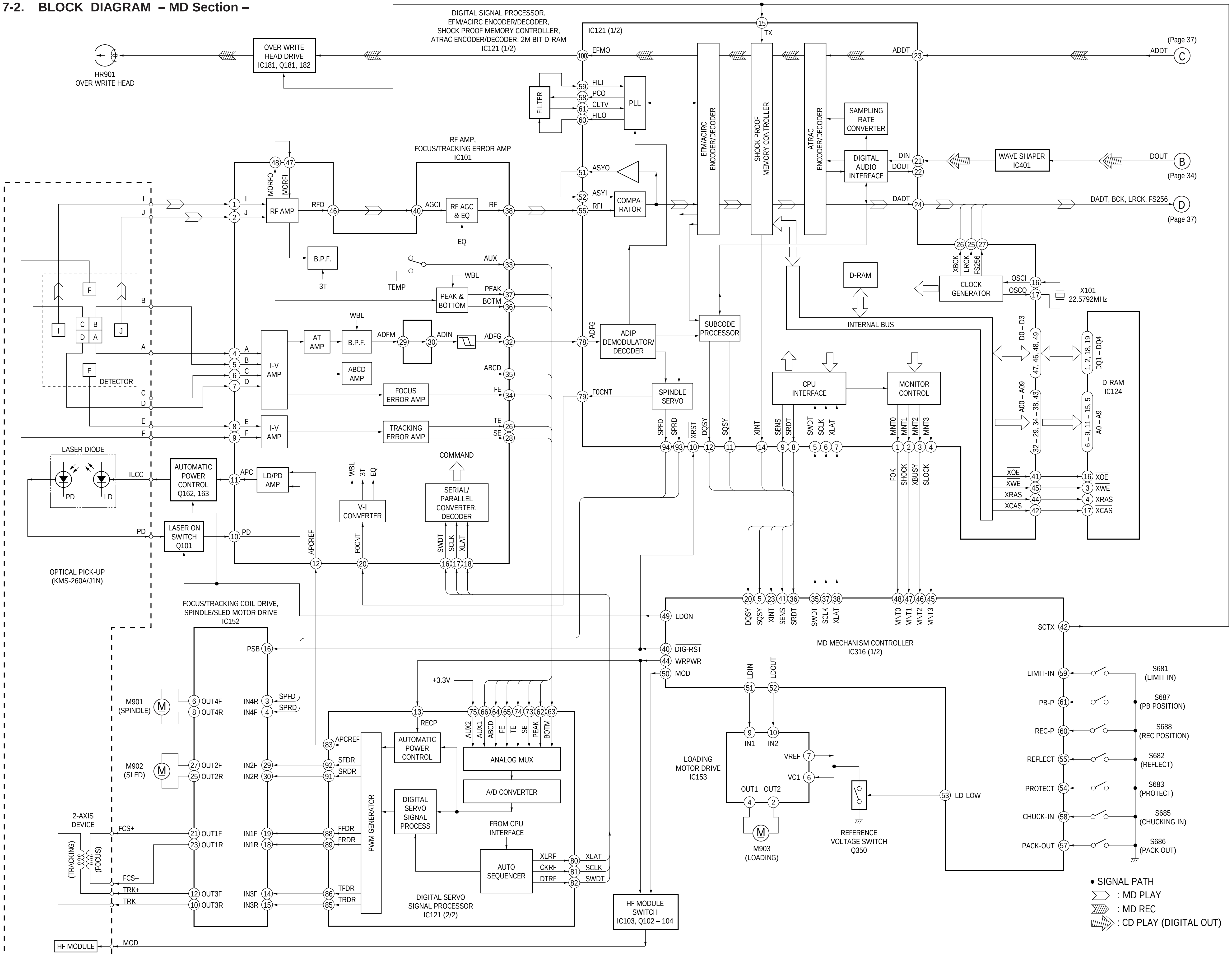


SECTION 7
DIAGRAMS

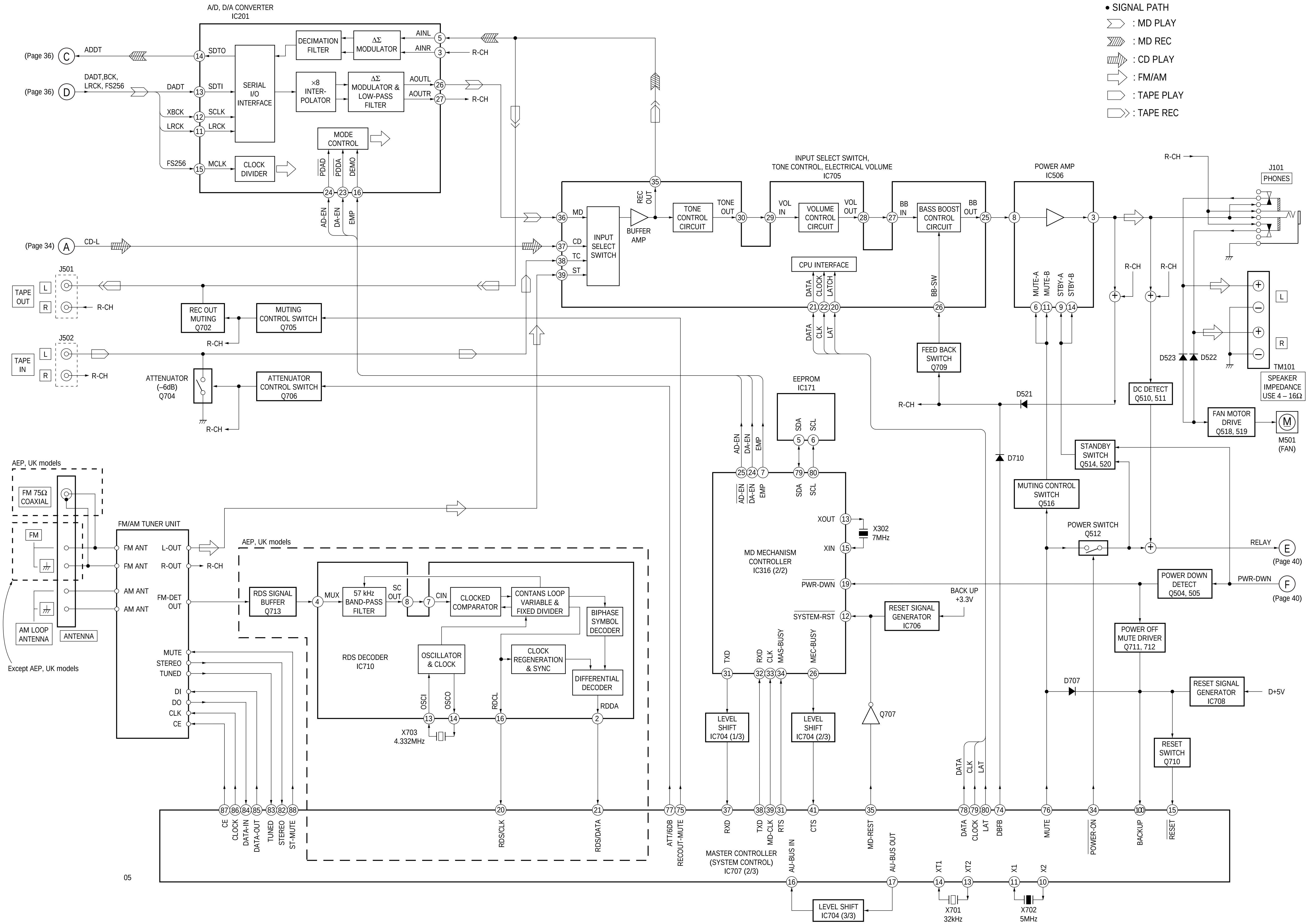
7-1. BLOCK DIAGRAM – CD Section –



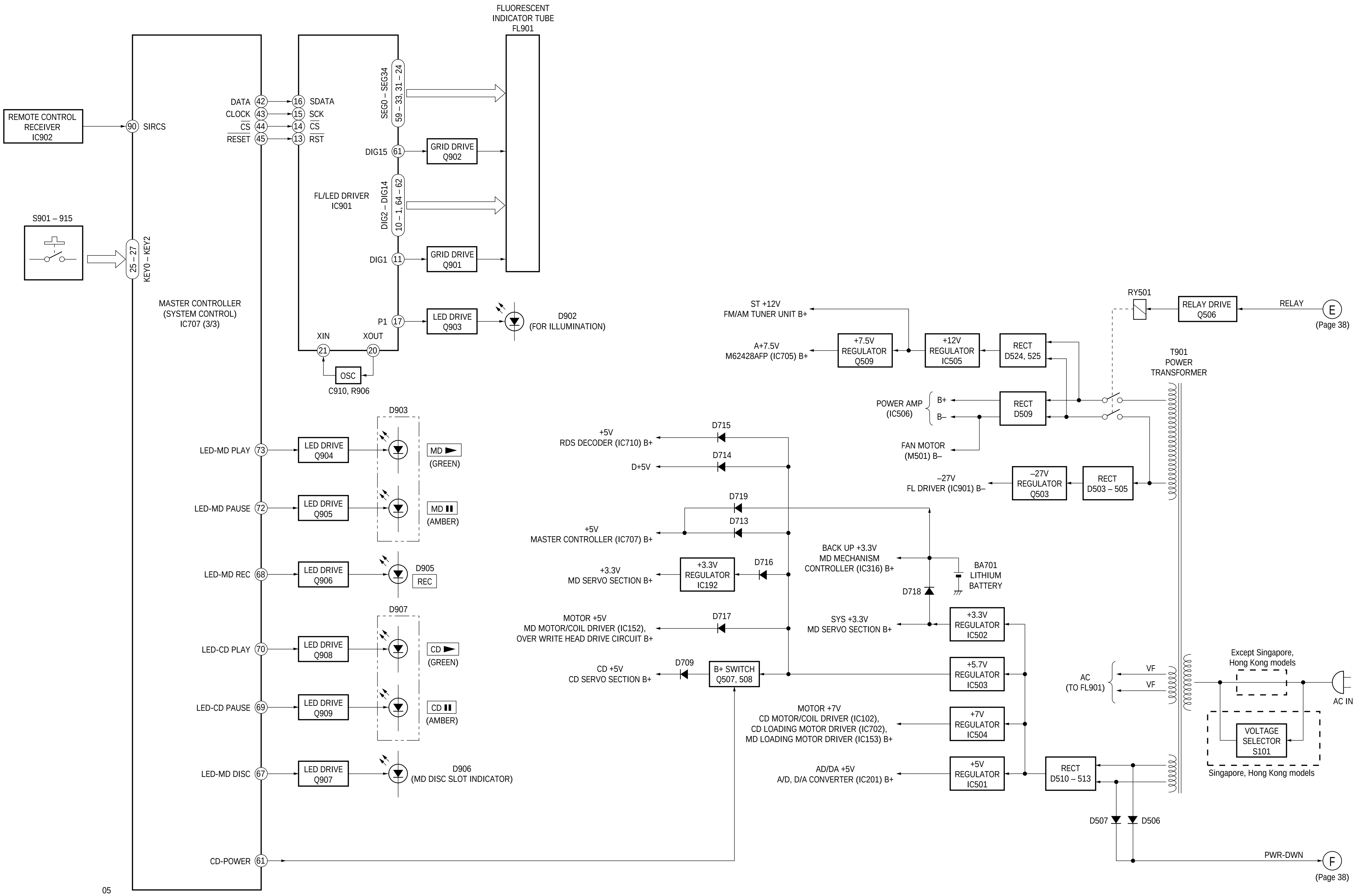
7-2. BLOCK DIAGRAM – MD Section –



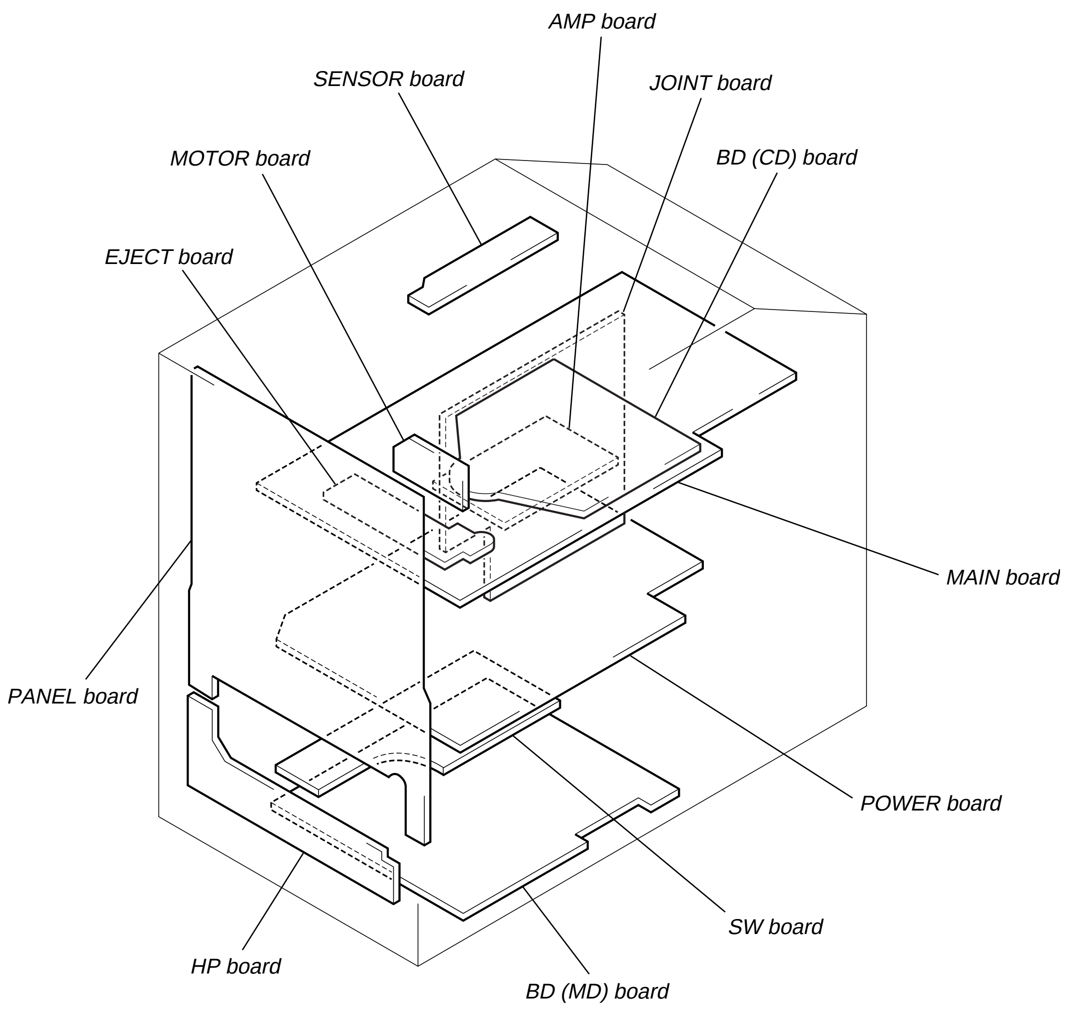
7-3. BLOCK DIAGRAM – MAIN Section –



7-4. BLOCK DIAGRAM – DISPLAY/POWER SUPPLY Section –



- **Circuit Boards Location**



7-5. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : panel designation.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

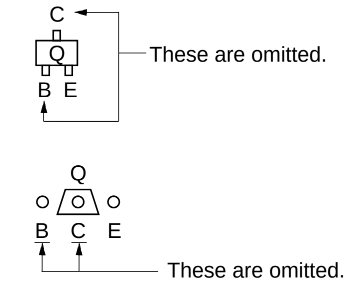
- B+ : B+ Line.
- B– : B– Line.
- : adjustment for repair.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - : FM/AM
  - : MD PLAY
  - : MD REC
  - : CD PLAY (ANALOG OUT)
  - : CD PLAY (DEGITAL OUT)
  - : TAPE PLAY
  - : TAPE REC
- Abbreviation
  - CND : Canadian model.
  - HK : Hong Kong model.
  - SP : Singapore model.

Note on Printed Wiring Board:
- : parts extracted from the component side.
- ○ : Through hole.
- : Pattern from the side which enables seeing.

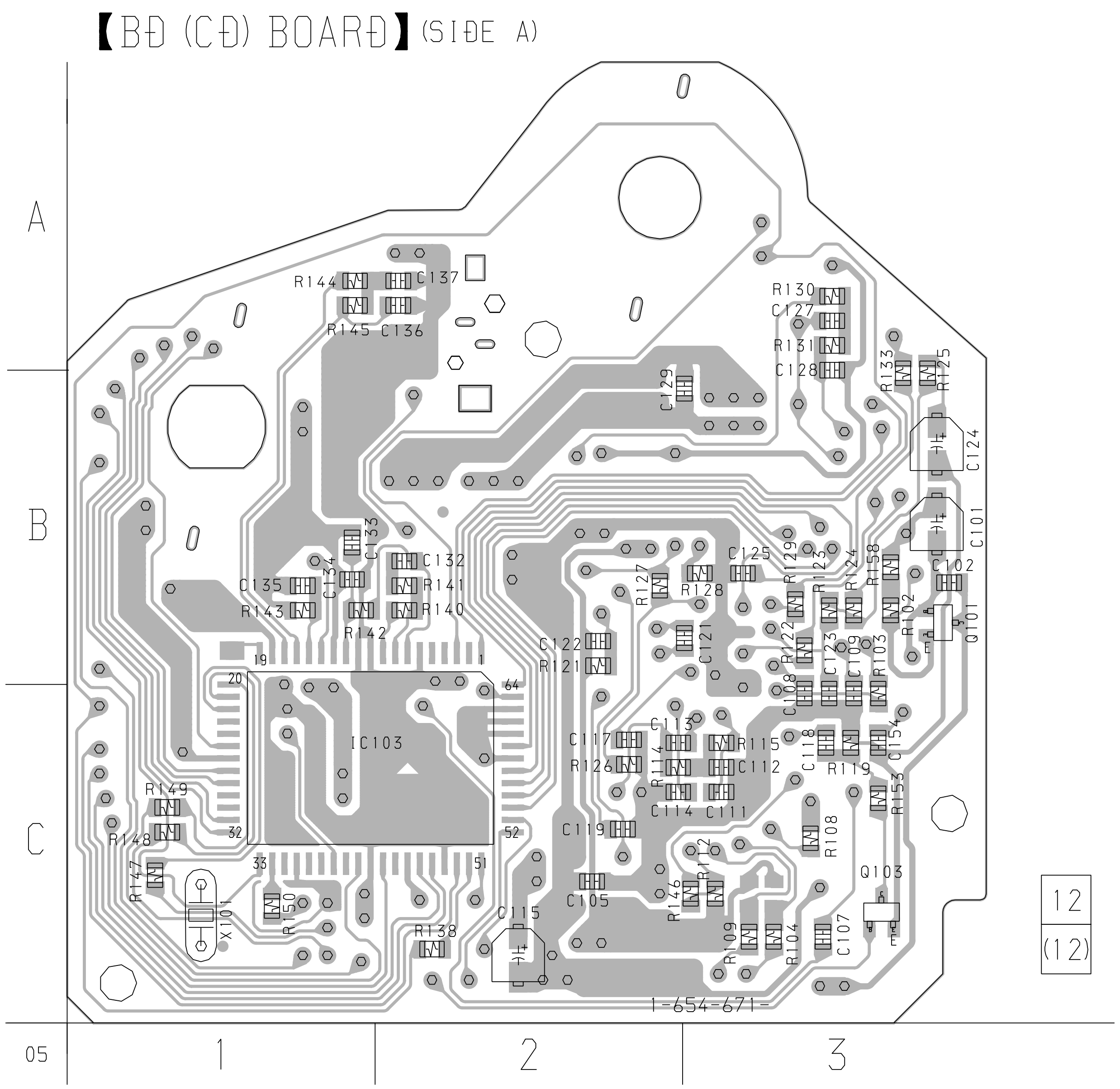
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

- Indication of transistor.

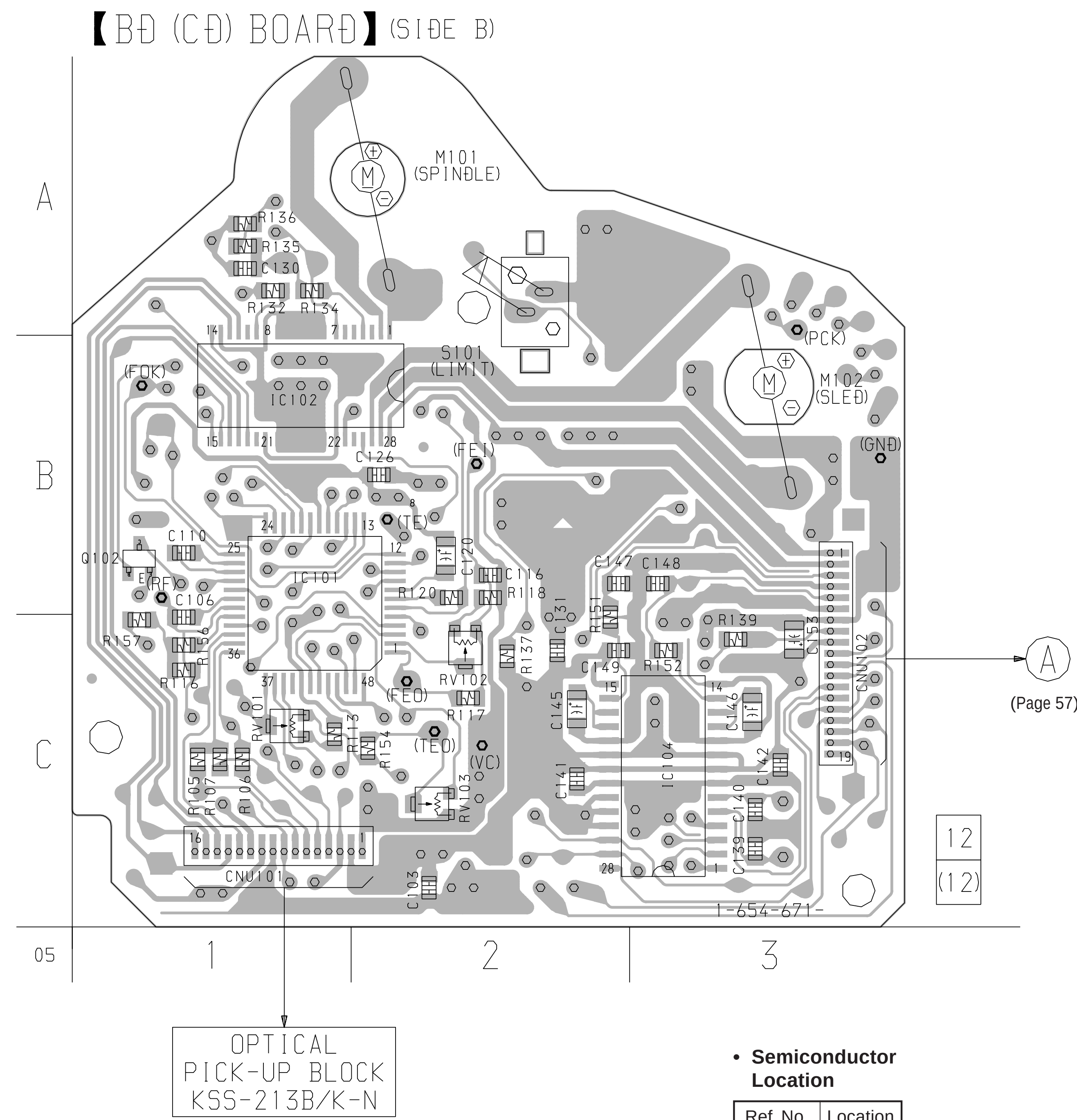


7-6. PRINTED WIRING BOARD – BD (CD) Section – • See page 41 Circuit Boards Location.



- **Semiconductor Location**

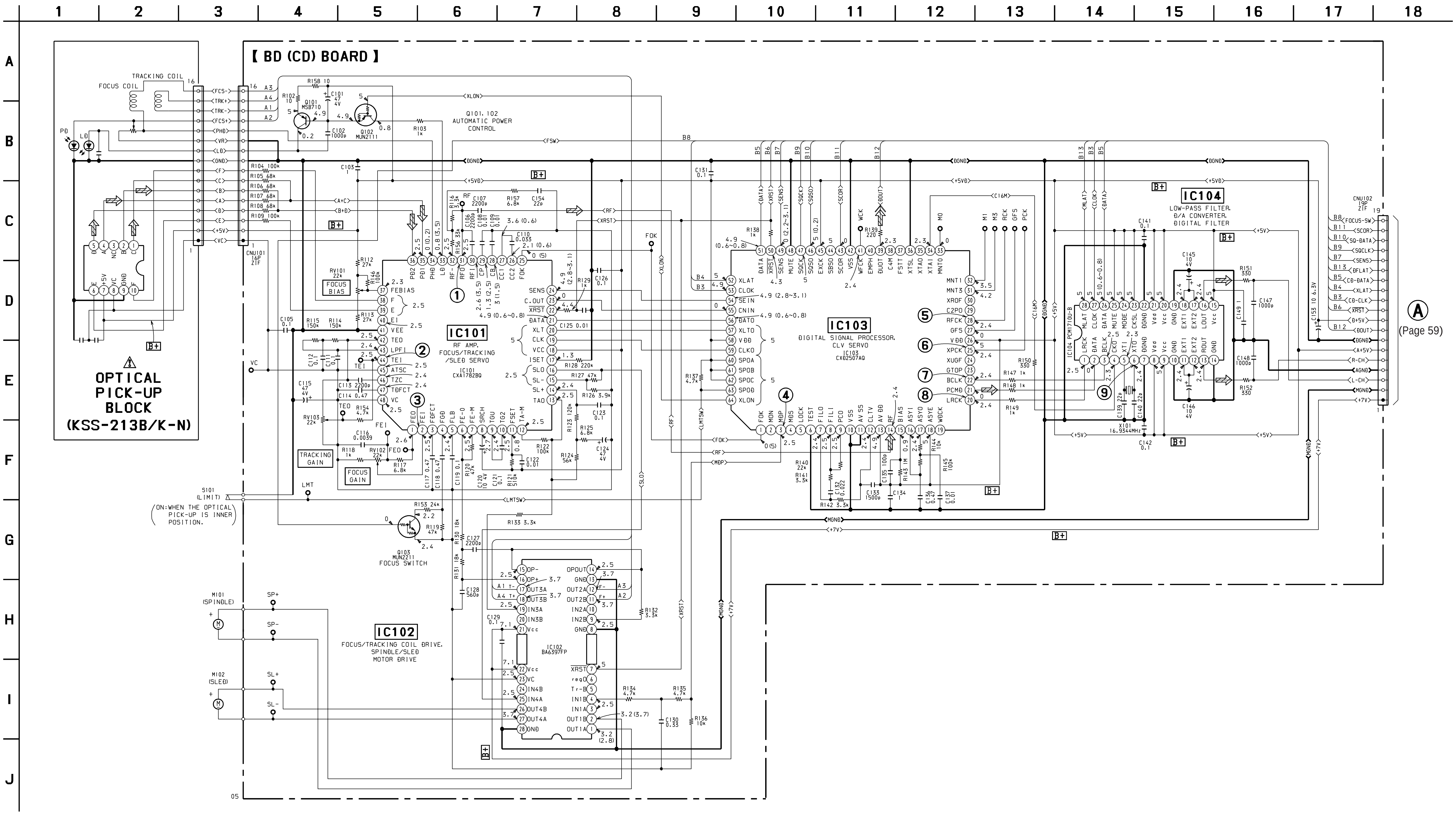
Ref. No.	Location
IC103	C-1
Q101	B-3
Q103	C-3



- **Semiconductor Location**

Ref. No.	Location
IC101	B-1
IC102	B-1
IC104	C-3
Q102	B-1

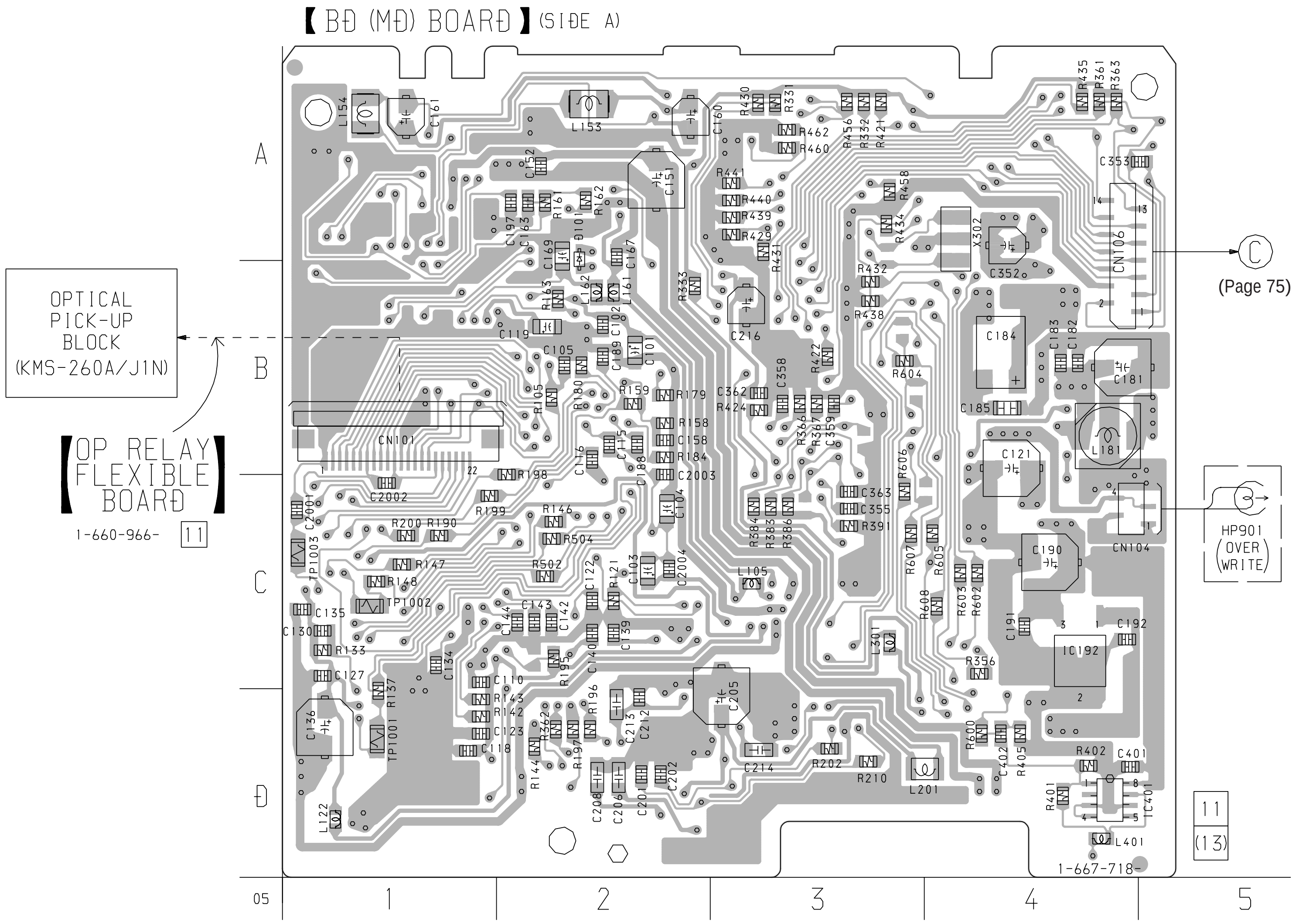
7-7. SCHEMATIC DIAGRAM – BD (CD) Section – **• See page 77 for Waveforms. • See page 79 for IC Block Diagrams.**

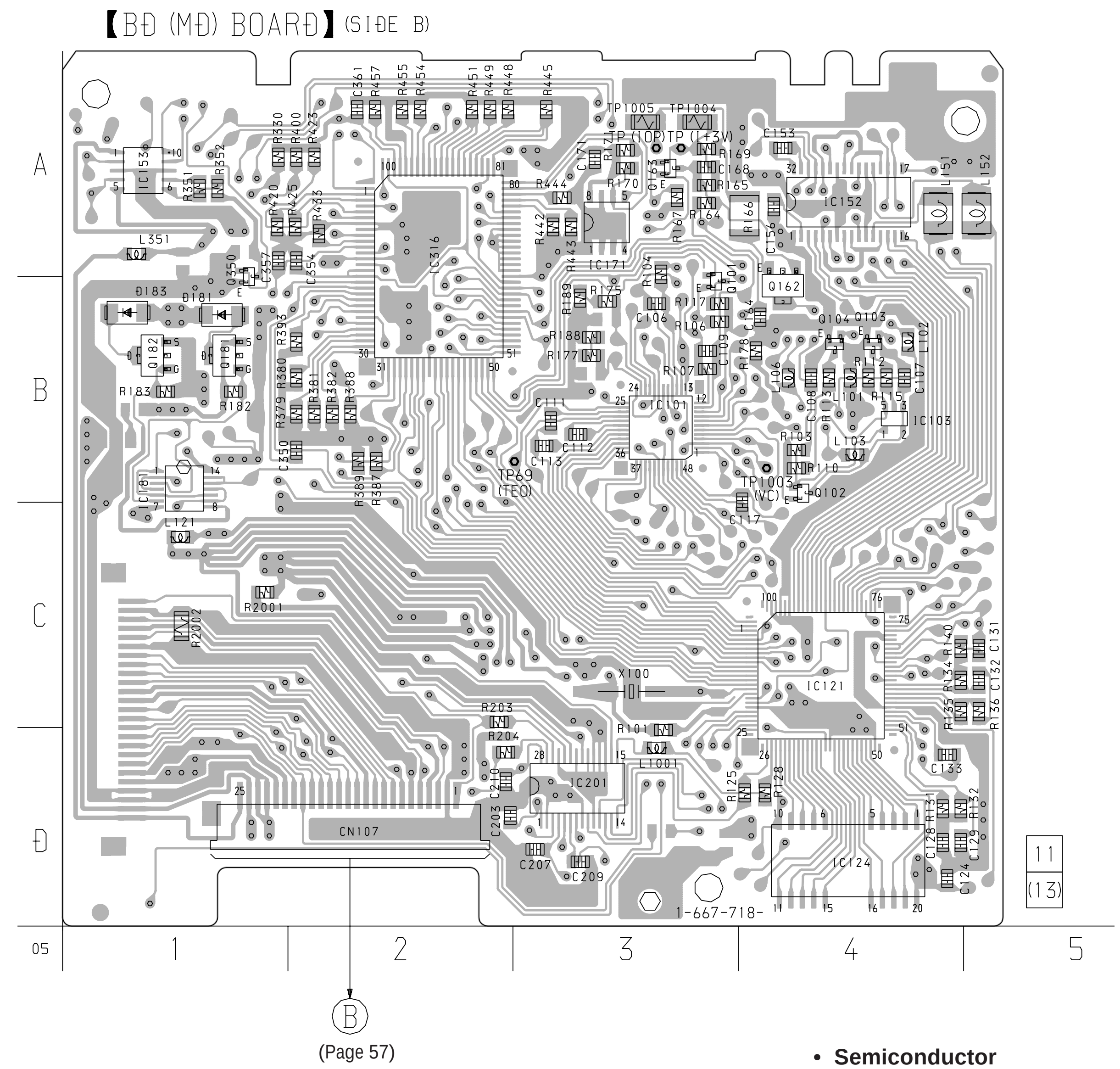


- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  - no mark : STOP
  - ( ) : CD PLAY
  - ∗ : Impossible to measure

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

7-8. PRINTED WIRING BOARD – BD (MD) Section – • See page 41 Circuit Boards Location.





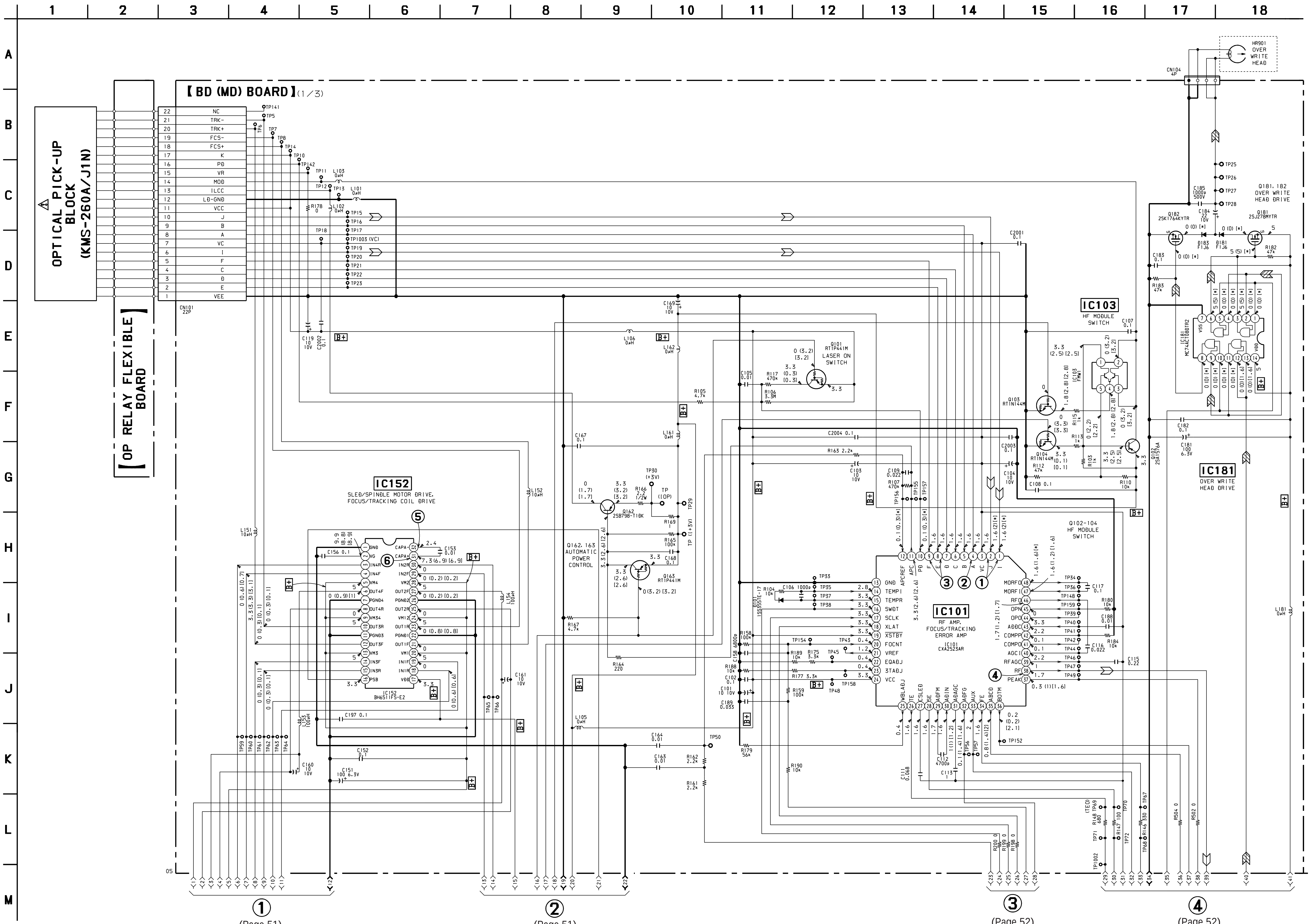
• **Semiconductor Location**

Ref. No.	Location
D101	B-2
IC192	C-4
IC401	D-4

• **Semiconductor Location**

Ref. No.	Location
D181	B-1
D183	B-1
IC101	B-3
IC103	B-4
IC121	C-4
IC124	D-4
IC152	A-4
IC153	A-1
IC171	A-3
IC181	B-1
IC201	D-3
IC316	A-2
Q101	B-3
Q102	B-4
Q103	B-4
Q104	B-4
Q162	B-4
Q163	A-3
Q181	B-1
Q182	B-1
Q350	A-1

7-9. SCHEMATIC DIAGRAM – BD (MD) Section (1/3) – • See page 77 for Waveforms. • See page 82 for IC Block Diagrams.



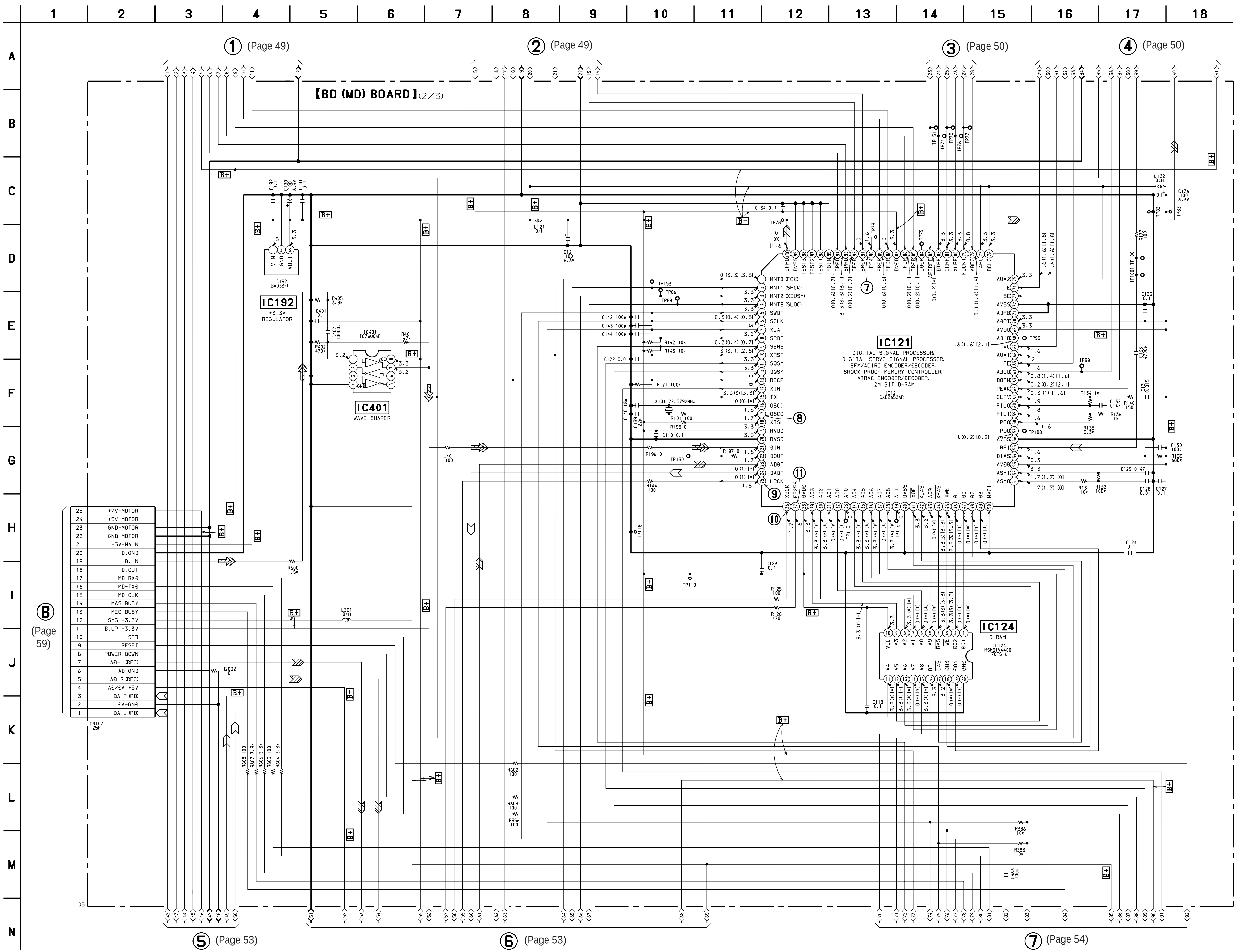
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : STOP
( ) : MD PLAY
[ ] : MD REC
* : Impossible to measure

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

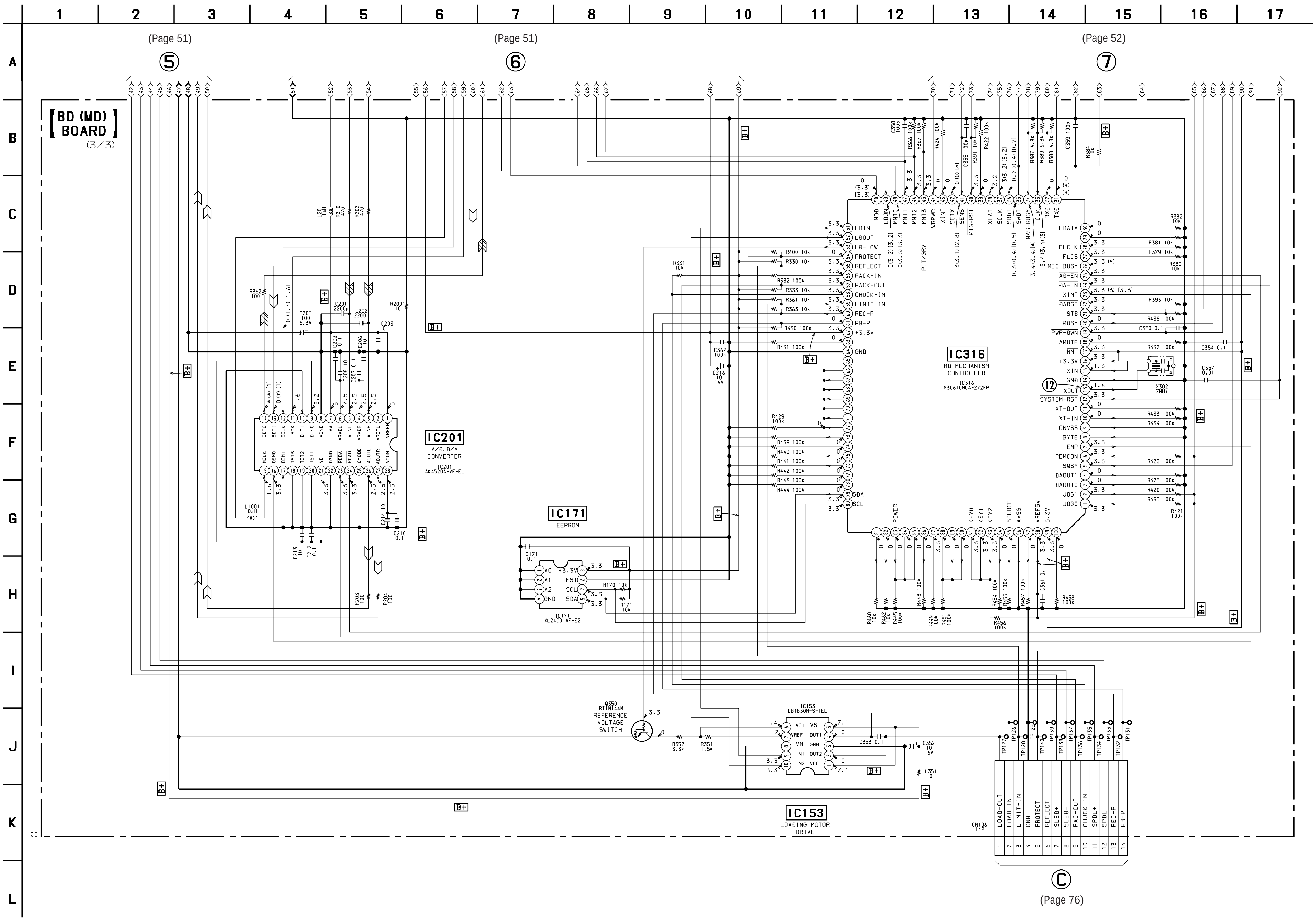
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  - no mark : STOP
  - ( ) : MD PLAY
  - [ ] : MD REC
  - ∗ : Impossible to measure

7-10. SCHEMATIC DIAGRAM – BD (MD) Section (2/3) –

• See page 77 for Waveforms. • See page 82 for IC Block Diagrams.

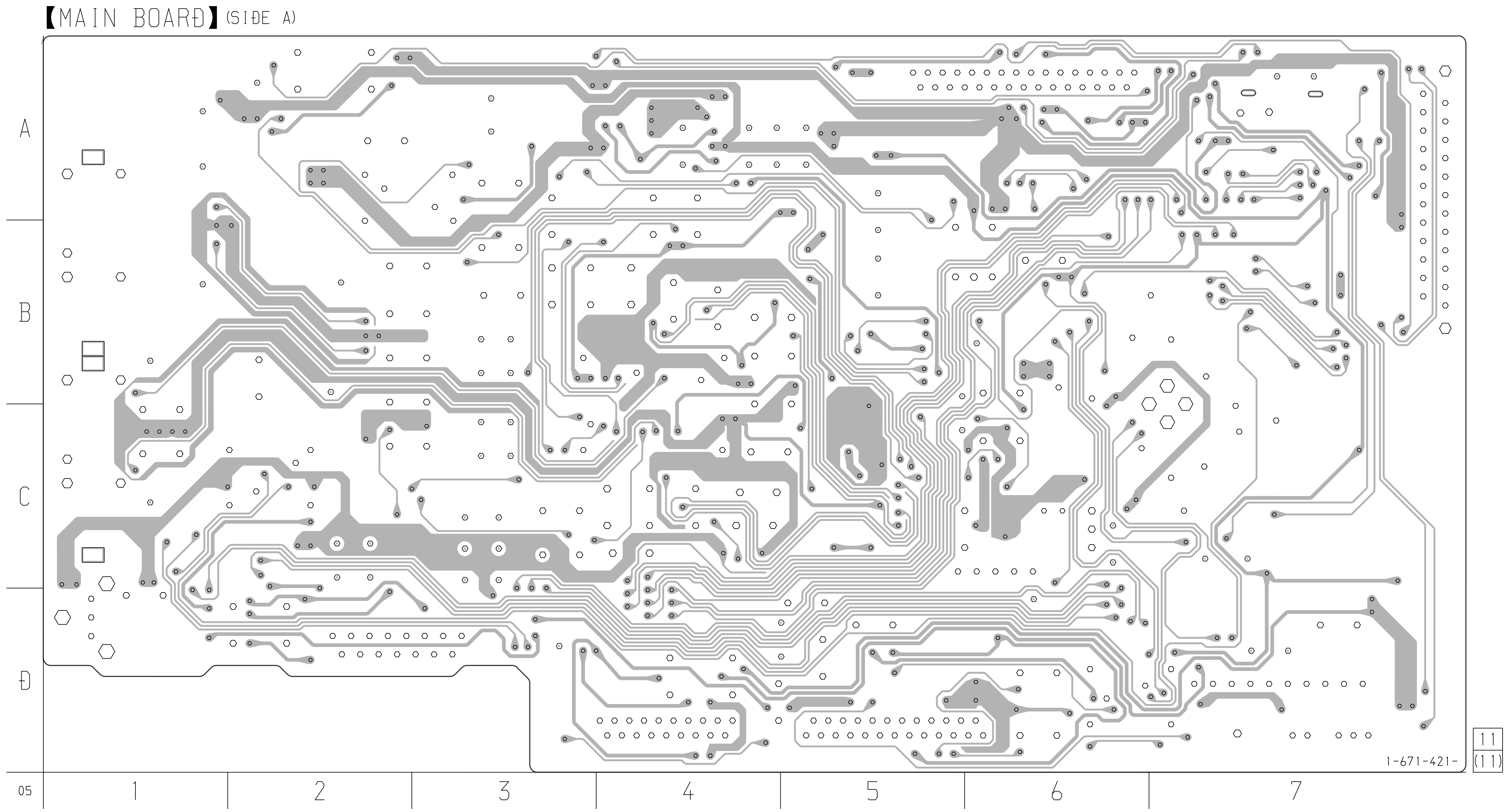


7-11. SCHEMATIC DIAGRAM – BD (MD) Section (3/3) – • See page 77 for Waveforms. • See page 82 for IC Block Diagrams.

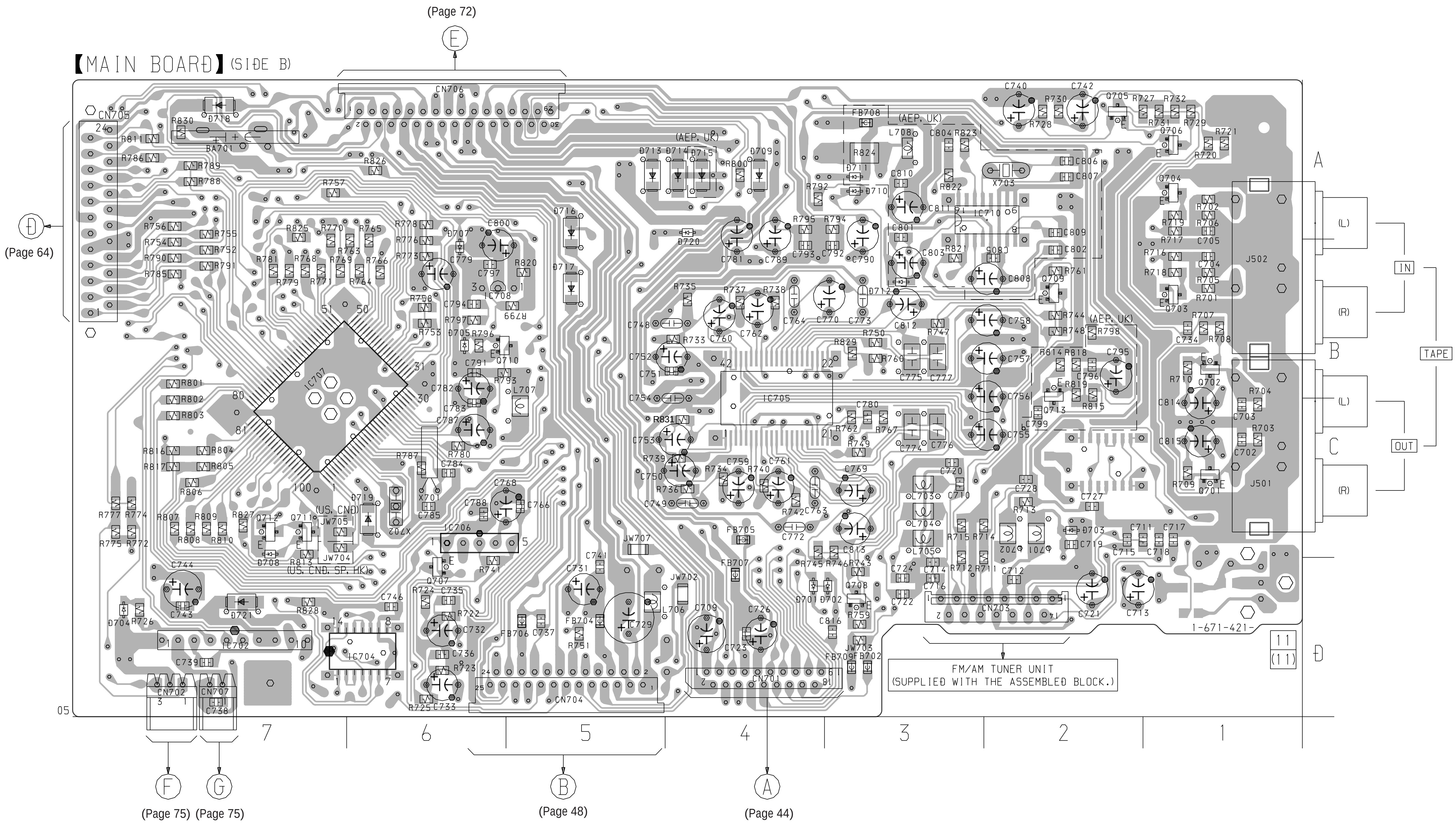


• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : STOP
( ) : MD PLAY
[ ] : MD REC
∗ : Impossible to measure

7-12. PRINTED WIRING BOARD – MAIN Board (side A) – • See page 41 Circuit Boards Location.



7-13. PRINTED WIRING BOARD – MAIN Board (side B) – • See page 41 Circuit Boards Location.



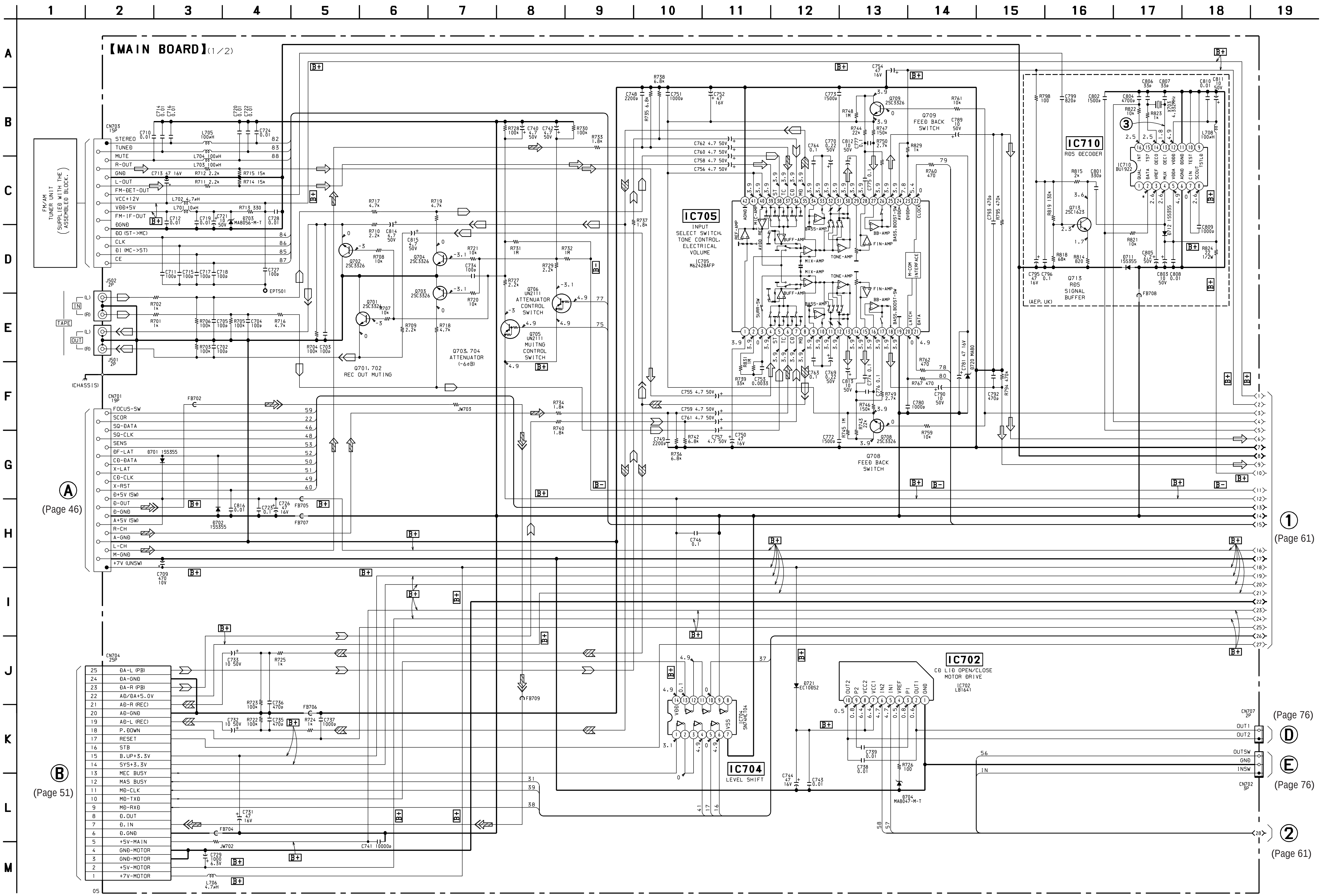
• **Semiconductor Location**

Ref. No.	Location
D701	D-4
D702	D-3
D703	C-2
D704	D-7
D705	B-6
D707	B-6
D708	C-7
D709	A-4
D710	A-3
D711	A-3
D712	B-3
D713	A-5
D714	A-4
D715	A-4
D716	A-5
D717	B-5
D718	A-7
D719	C-6
D720	A-4
D721	D-7
IC702	D-7
IC704	D-6
IC705	C-4
IC706	C-6
IC707	B-7
IC708	B-6
IC710	A-2
Q701	C-1
Q702	B-1
Q703	B-1
Q704	A-1
Q705	A-2
Q706	A-1
Q707	D-6
Q708	D-3
Q709	B-2
Q710	B-6
Q711	C-7
Q712	C-7
Q713	C-2

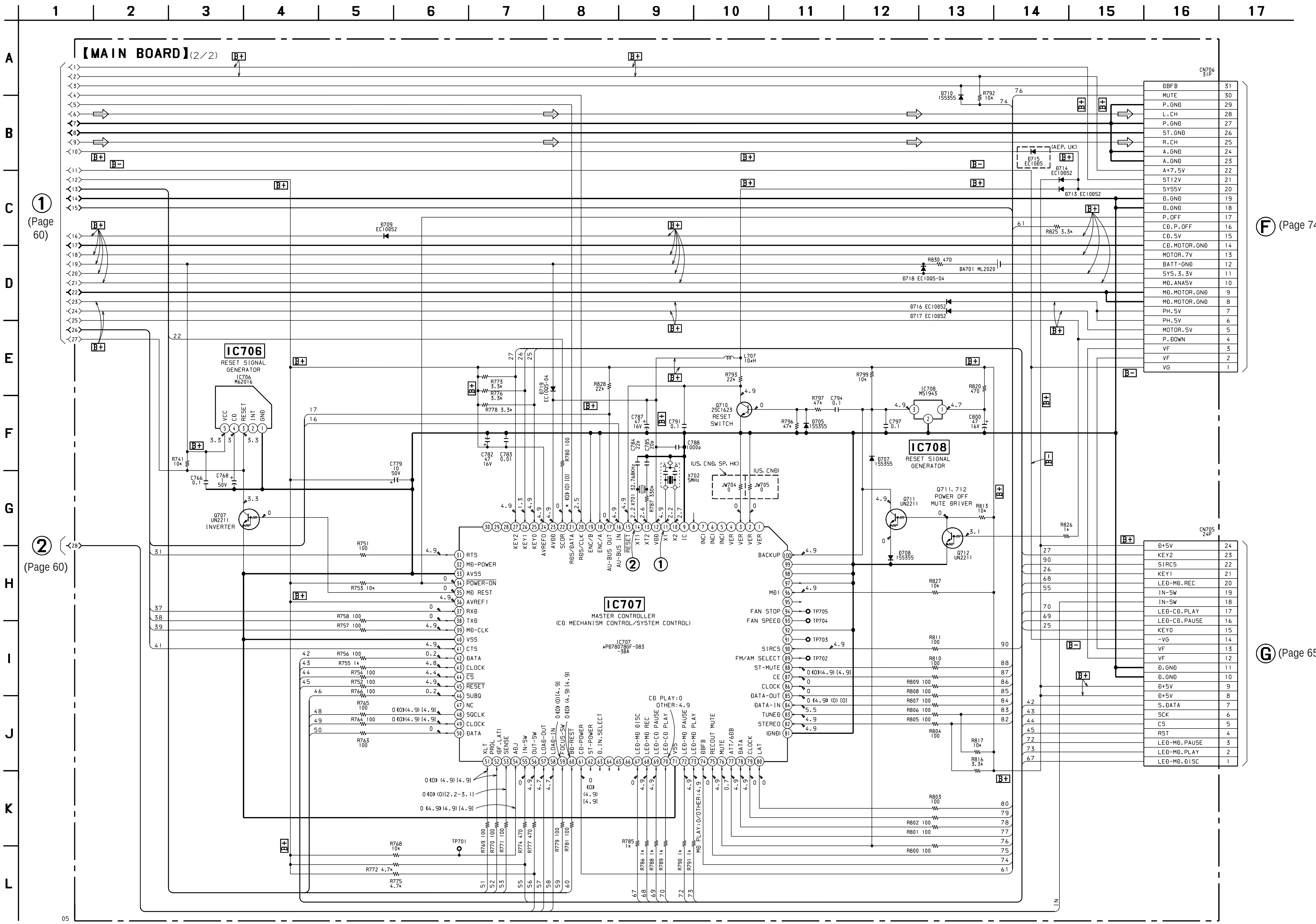
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM
∗ : Impossible to measure

7-14. SCHEMATIC DIAGRAM – MAIN Section (1/2) –

• See page 78 for Waveforms. • See page 84 for IC Block Diagrams.



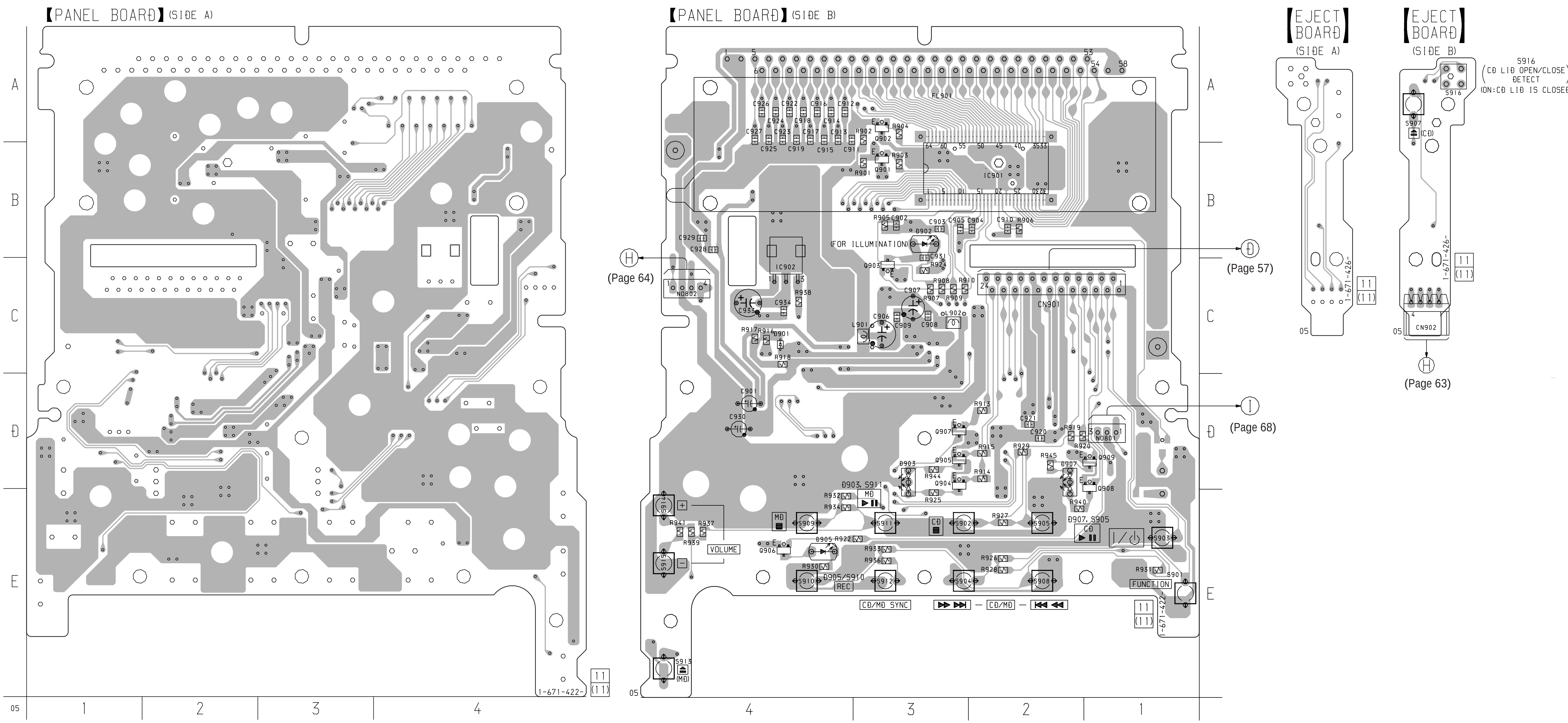
7-15. SCHEMATIC DIAGRAM – MAIN Section (2/2) – • See page 78 for Waveforms. • See page 84 for IC Block Diagrams.



• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM
《 》 : AM
[ ] : CD PLAY
( ) : MD PLAY

7-16. PRINTED WIRING BOARDS – PANEL Section –

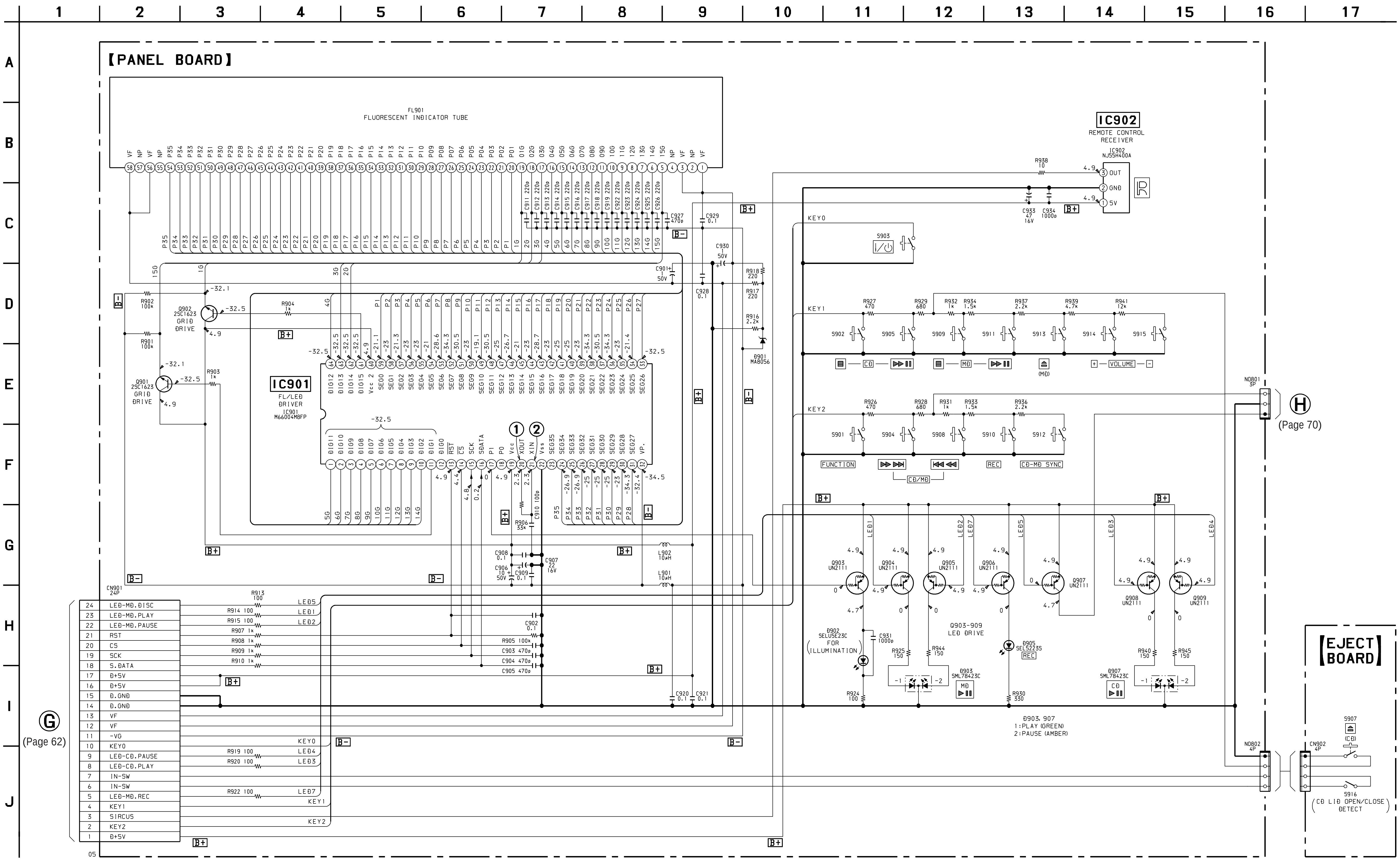
• See page 41 Circuit Boards Location.



• **Semiconductor Location**

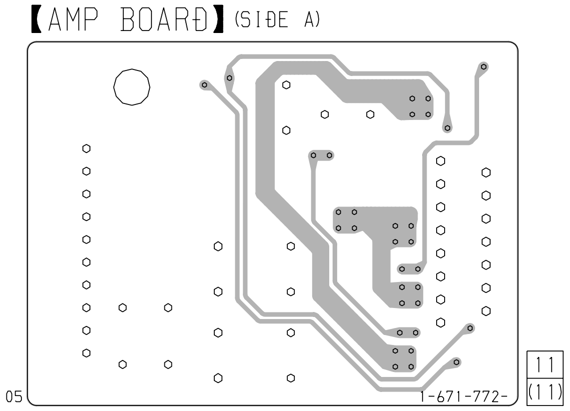
Ref. No.	Location	Ref. No.	Location
D901	C-4	Q901	B-3
D902	B-3	Q902	A-3
D903	D-3	Q903	C-3
D905	E-4	Q904	D-3
D907	D-2	Q905	D-3
		Q906	E-4
IC901	B-2	Q907	D-3
IC902	C-4	Q908	D-1
		Q909	D-1

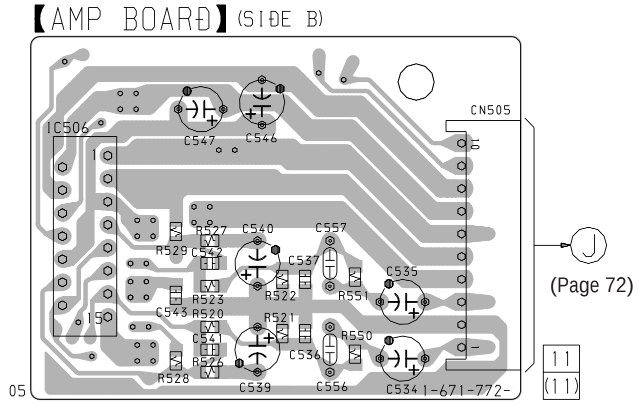
7-17. SCHEMATIC DIAGRAM – PANEL Section – • See page 85 for IC Block Diagrams.

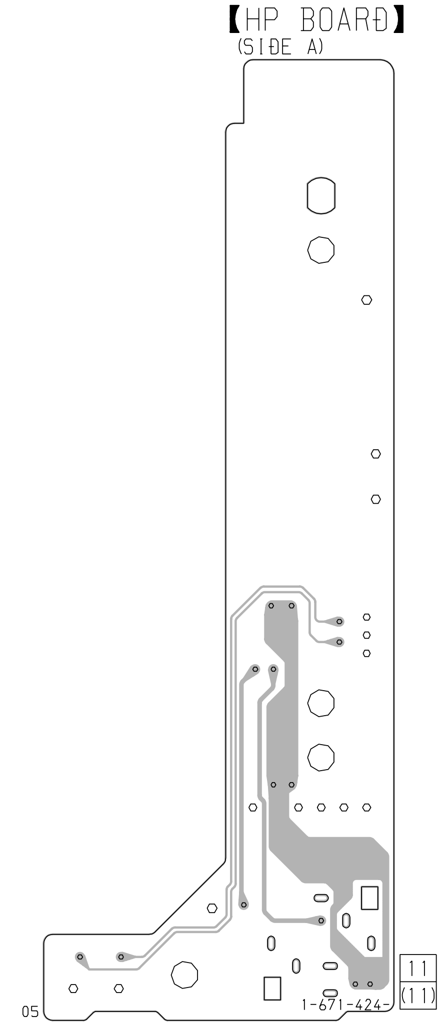


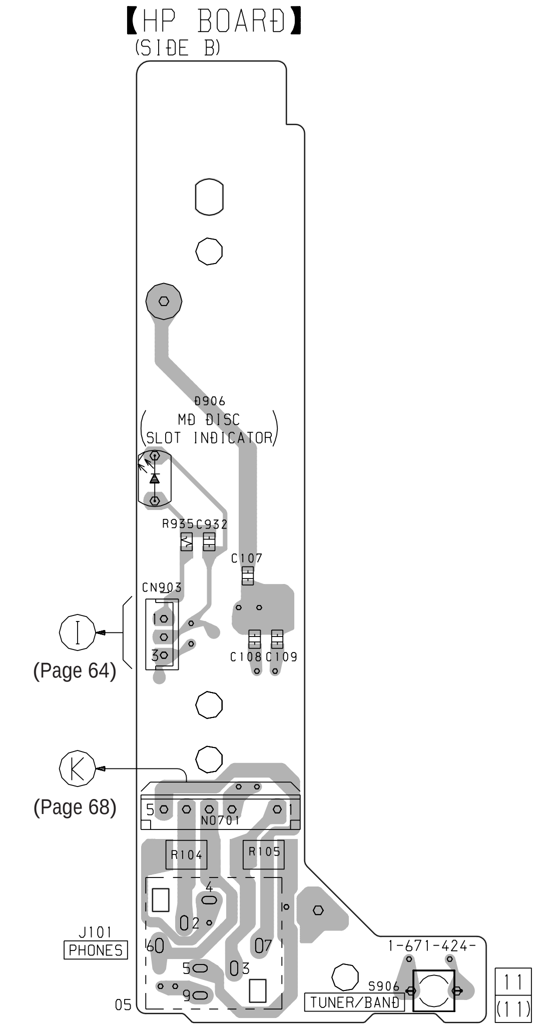
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

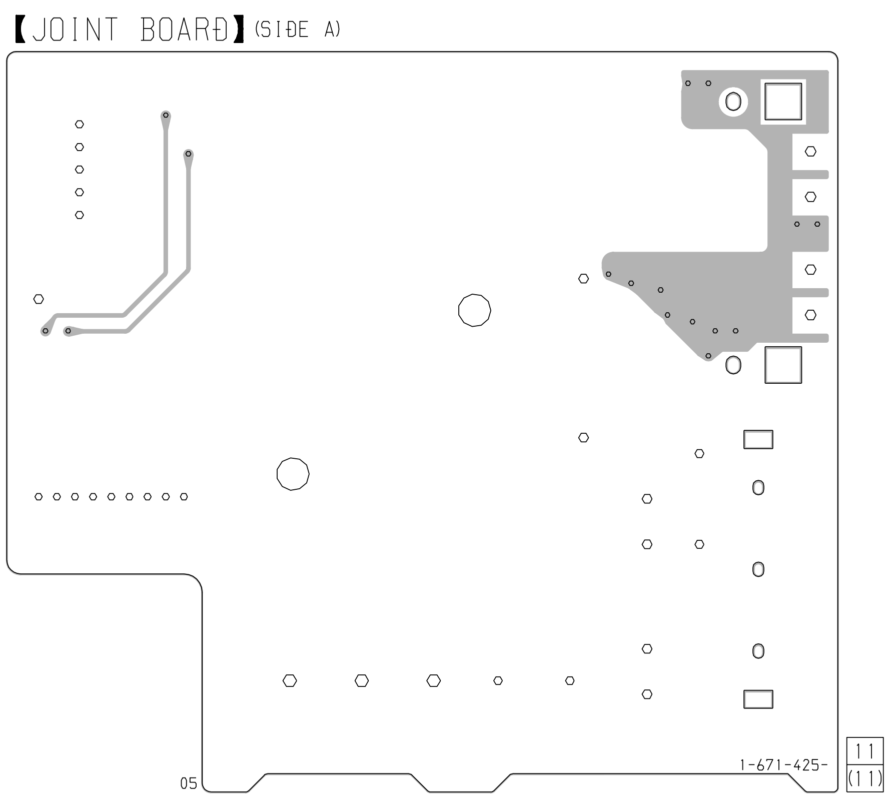
7-18. PRINTED WIRING BOARDS – AMP/TRANSFORMER Section – **• See page 41 Circuit Boards Location.**

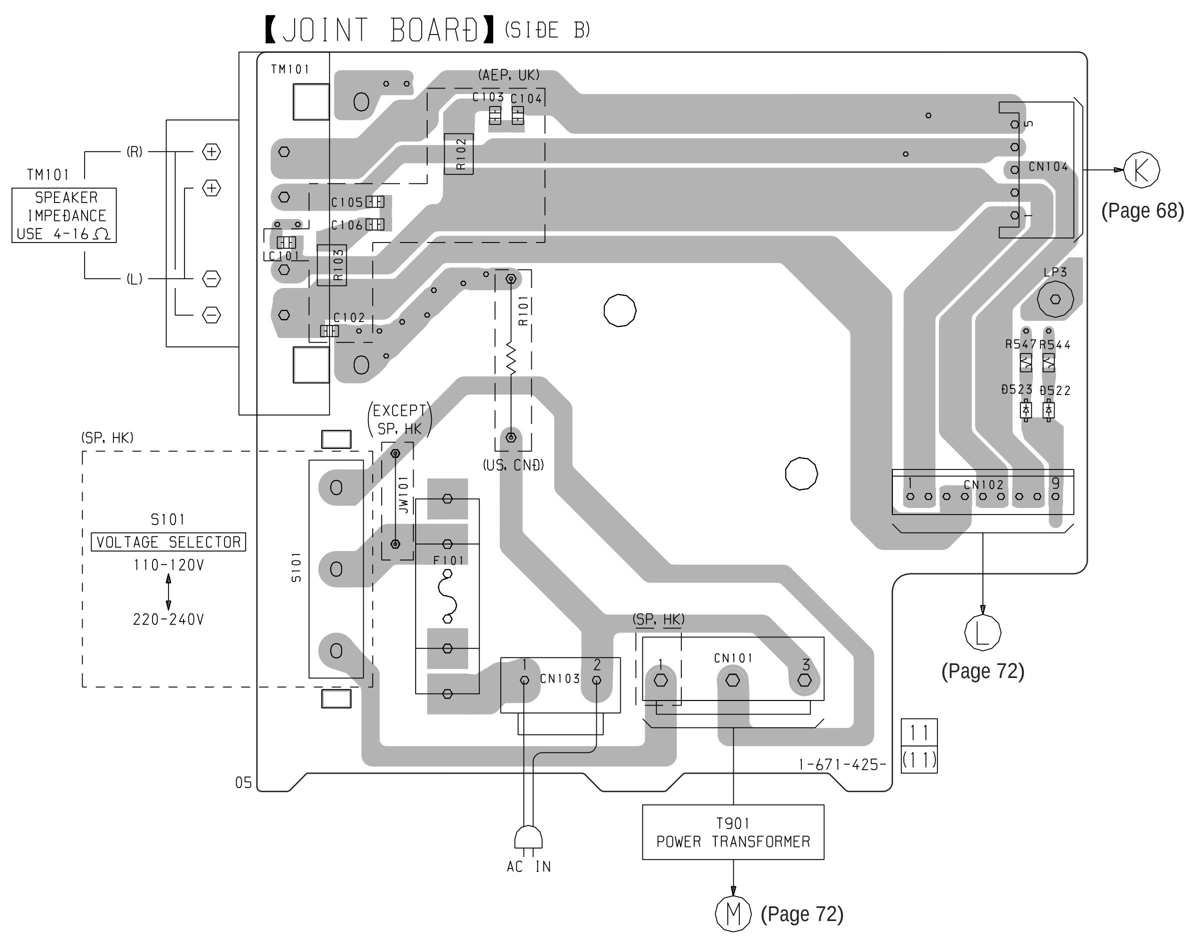




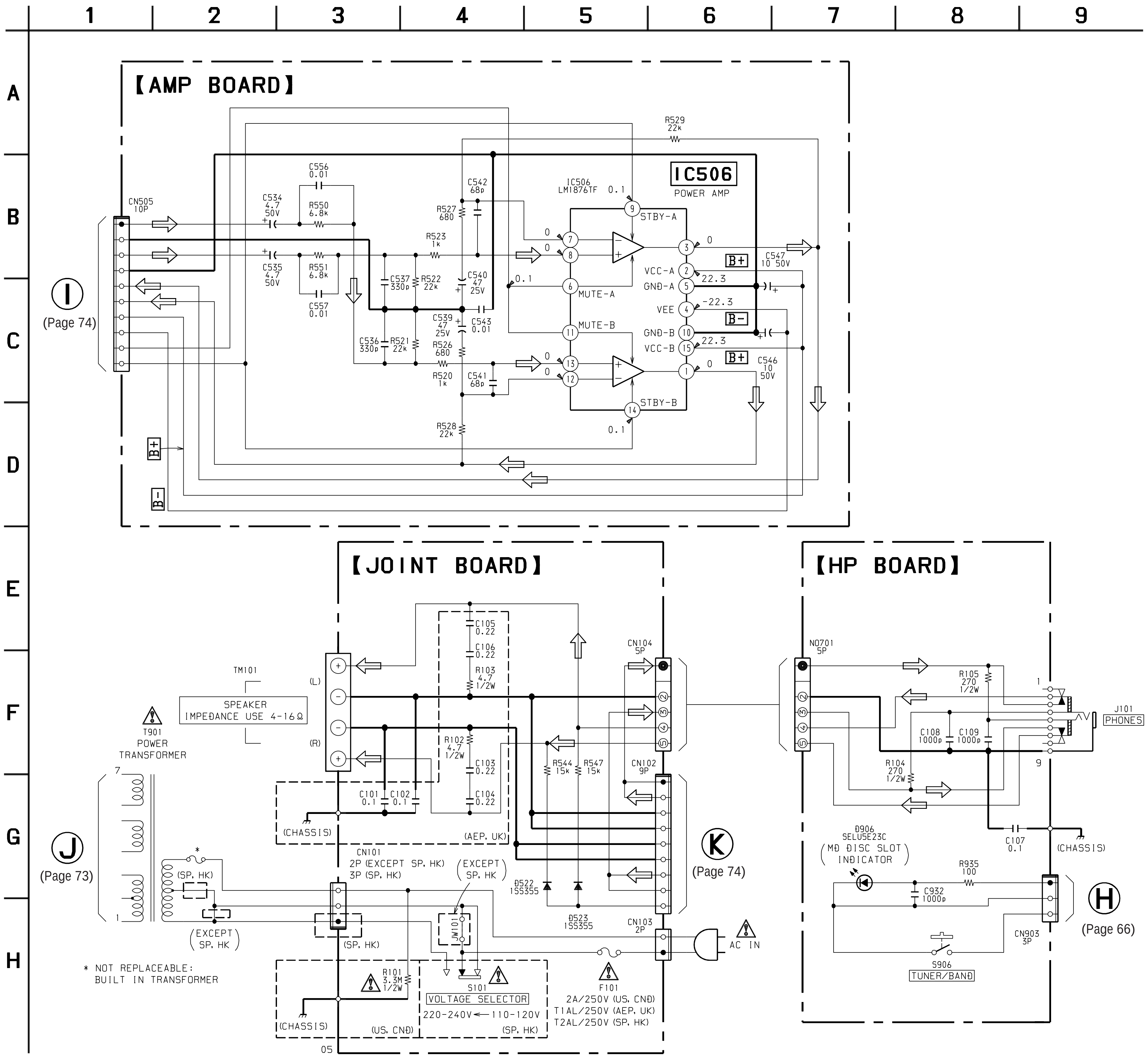








7-19. SCHEMATIC DIAGRAM – AMP/TRANSFORMER Section –

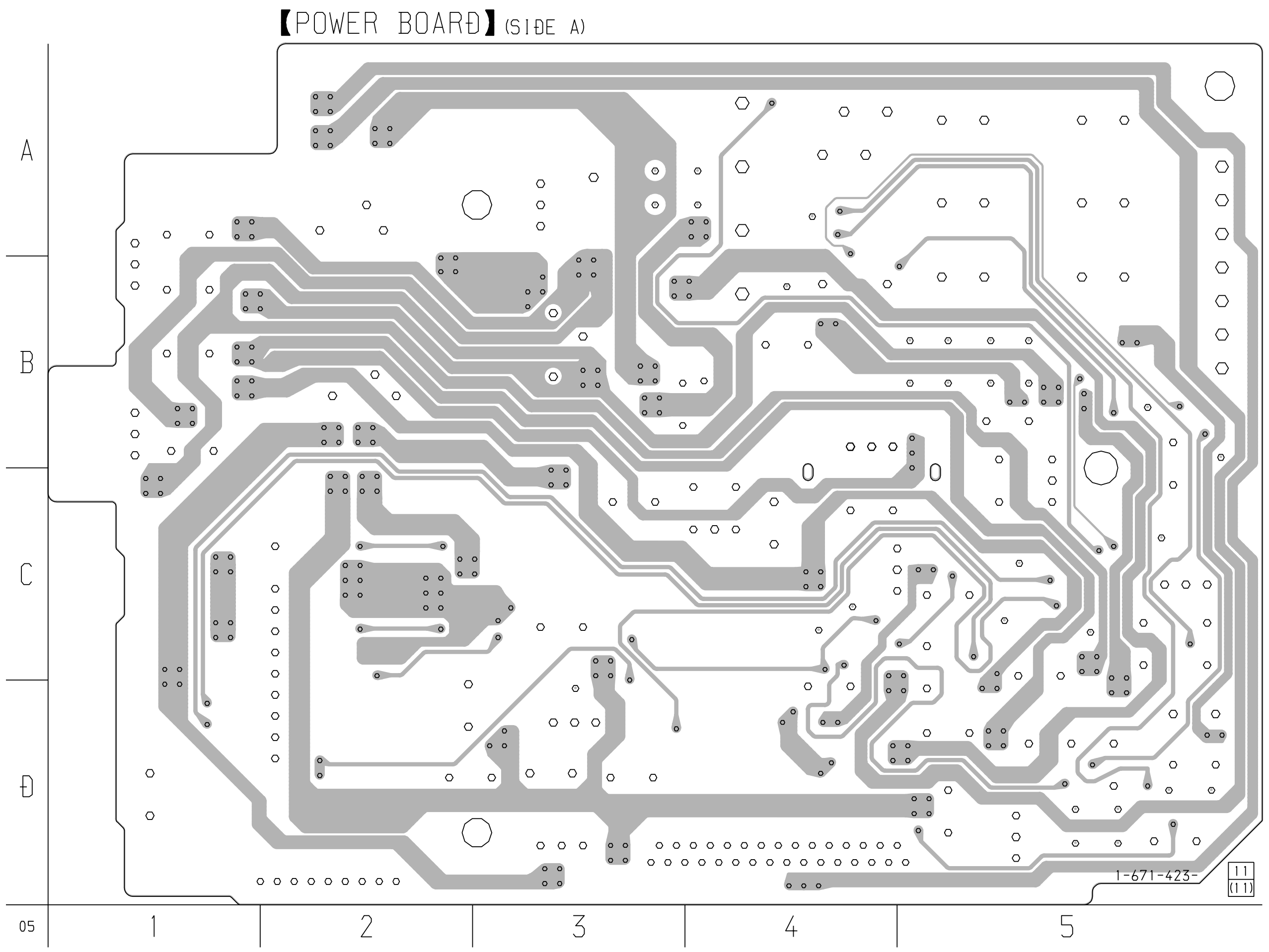


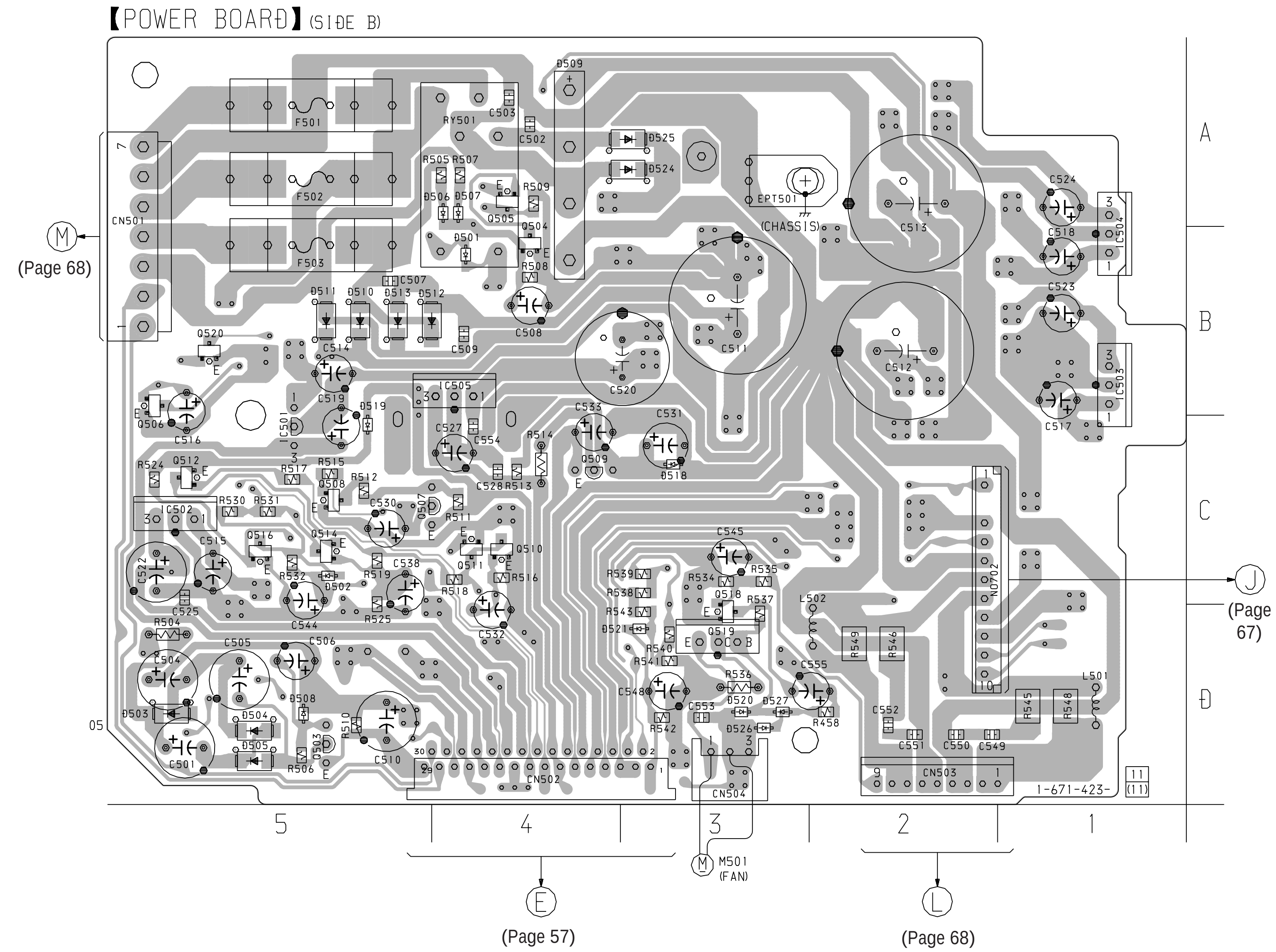
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

7-20. PRINTED WIRING BOARD – POWER Section –

• See page 41 Circuit Boards Location.

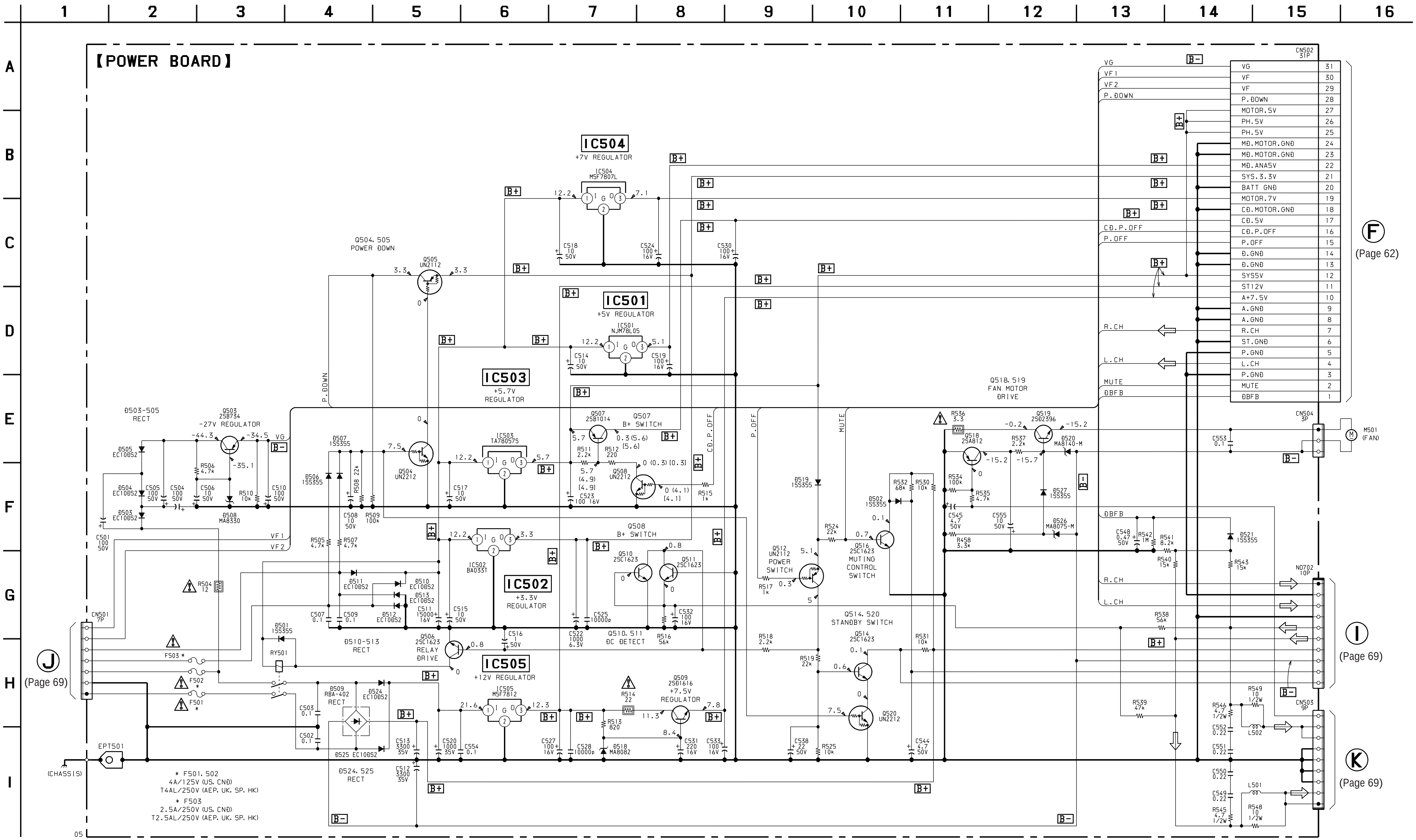




• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D501	B-4	IC501	C-5
D502	C-5	IC502	C-5
D503	D-5	IC503	B-1
D504	D-5	IC504	B-1
D505	D-5	IC505	B-4
D506	A-4		
D507	A-4	Q503	D-5
D508	D-5	Q504	B-4
D509	A-4	Q505	A-4
D510	B-5	Q506	B-5
D511	B-5	Q507	C-5
D512	B-5	Q508	C-5
D513	B-5	Q509	C-4
D518	C-3	Q510	C-4
D519	C-5	Q511	C-4
D520	D-3	Q512	C-5
D521	D-3	Q514	C-5
D524	A-3	Q516	C-5
D525	A-3	Q518	D-3
D526	D-3	Q519	D-3
D527	D-3	Q520	B-5

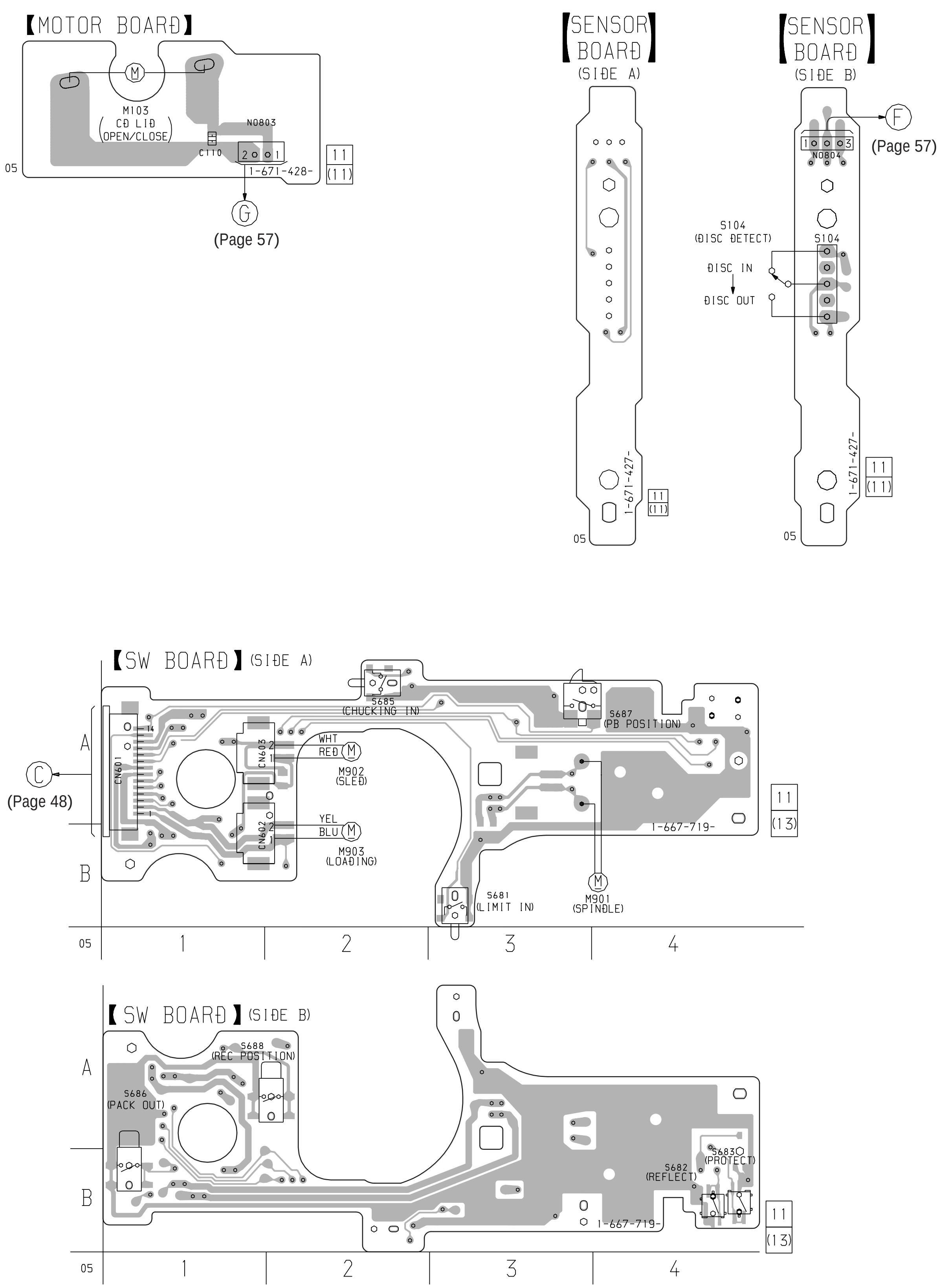
7-21. SCHEMATIC DIAGRAM – POWER Section –



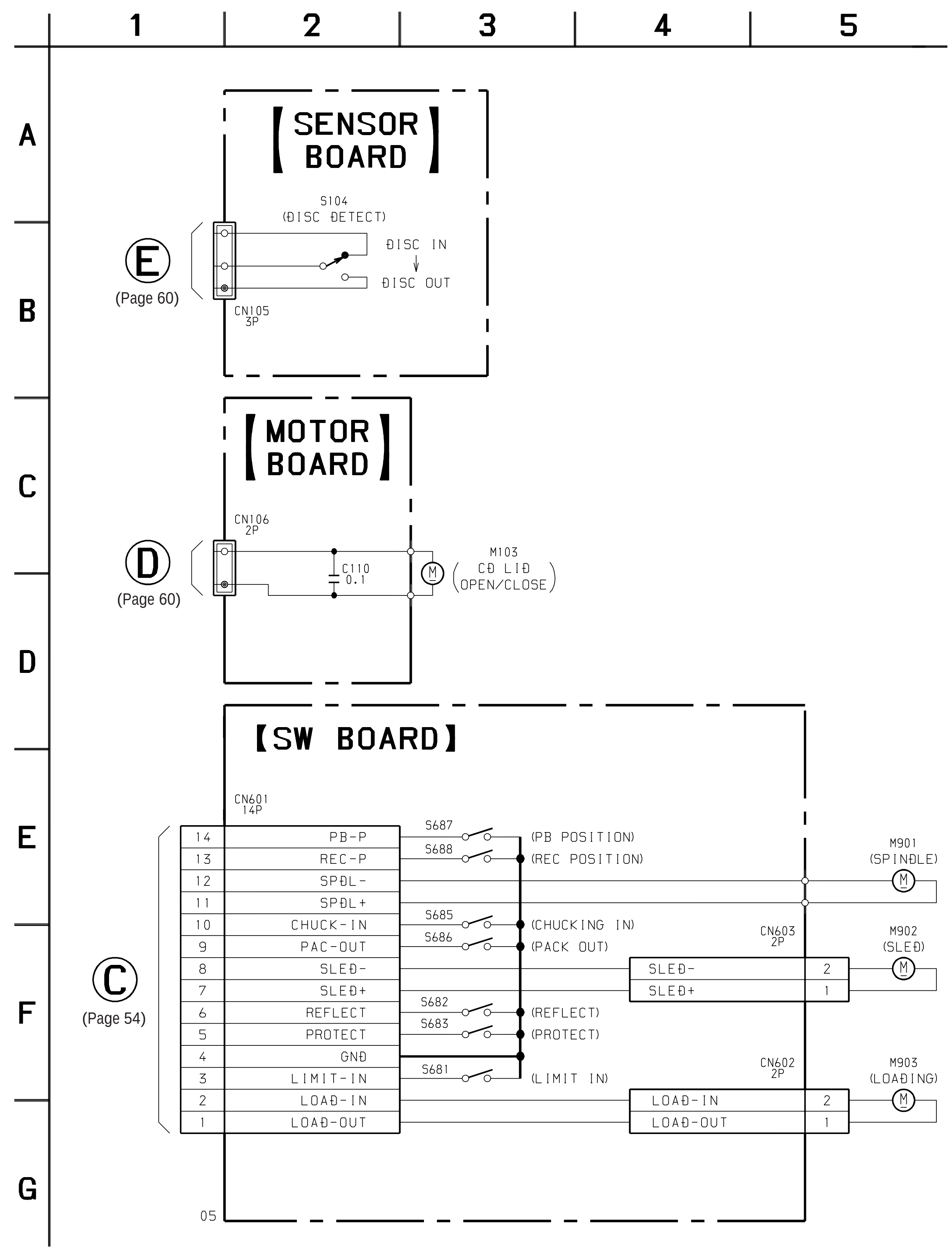
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM
[ ] : CD PLAY
( ) : MD PLAY

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

7-22. PRINTED WIRING BOARDS – MOTOR/SW Section –



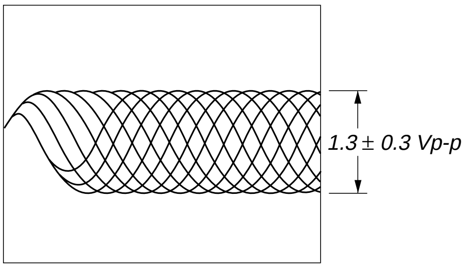
7-23. SCHEMATIC DIAGRAM – MOTOR/SW Section –



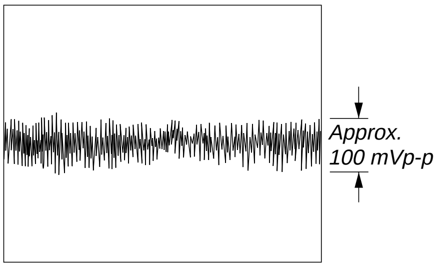
• **Waveforms**

– BD (CD) Board –

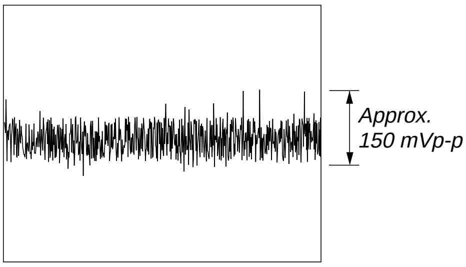
❶ IC101 ㉛ (RFO) (CD Play Mode)
500 mV/DIV, 500 ns/DIV



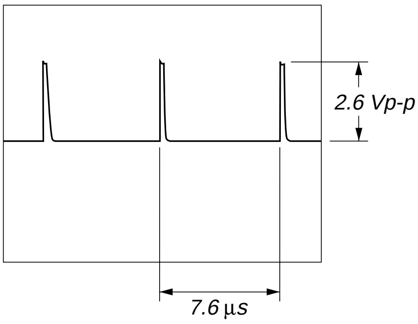
❷ IC101 ㊹ (TEI) (CD Play Mode)
50 mV/DIV, 1 μs/DIV



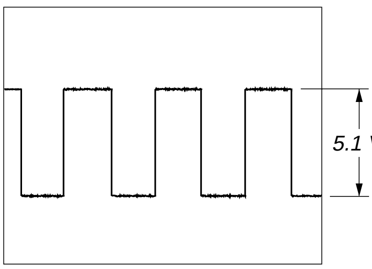
❸ IC101 ② (FEI) (CD Play Mode)
50 mV/DIV, 1 μs/DIV



❹ IC103 ③ (MDP) (CD Play Mode)

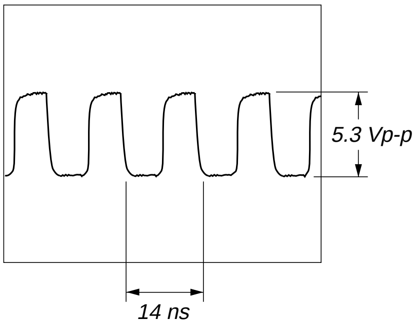


❺ IC103 ㉘ (RFCK)

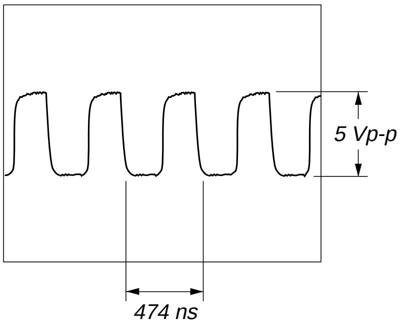


7.35 kHz

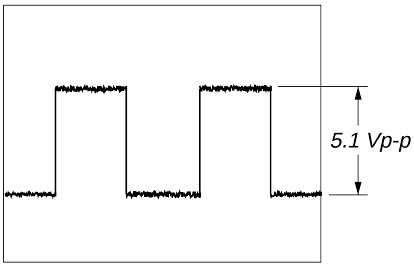
❻ IC103 ㉕ (XPCK)



❼ IC103 ㉒ (BCLK)

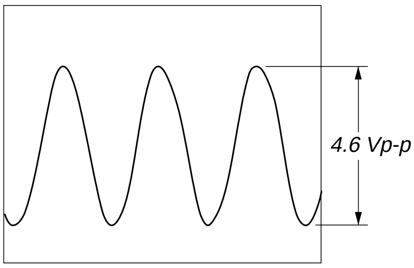


❽ IC103 ⑳ (LRCK)



44.1 kHz

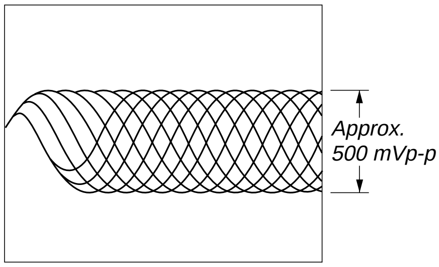
❾ IC104 ⑥ (XTO)



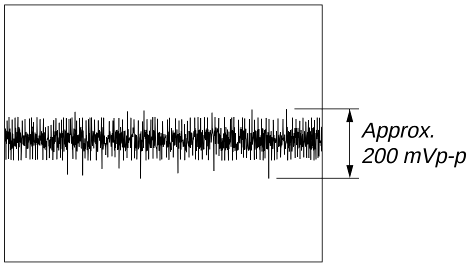
16.9344 MHz

– BD (MD) Board –

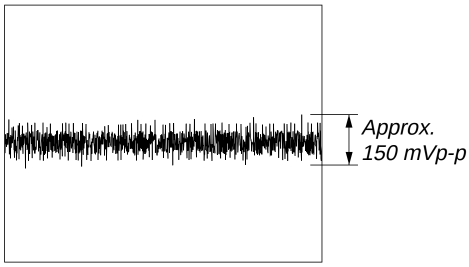
❶ IC101 ①, ② (I, J) (MD Play Mode)



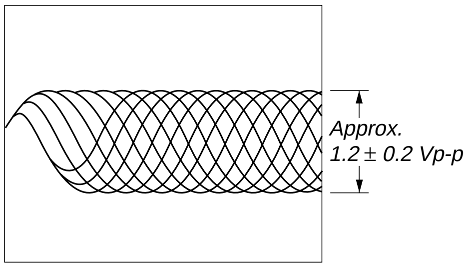
❷ IC101 ④ (A) (MD Play Mode)



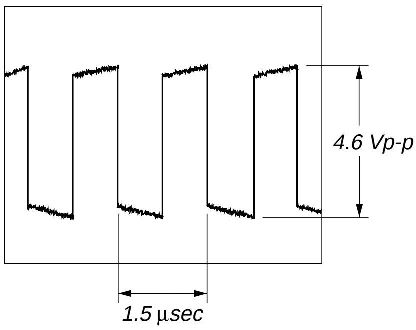
❸ IC101 ⑧, ⑨ (E, F) (MD Play Mode)



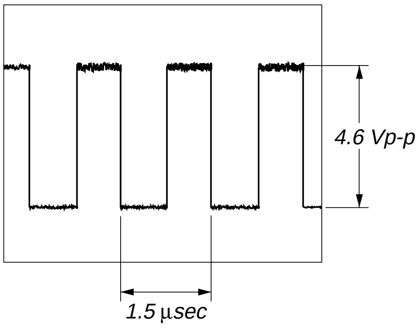
❹ IC101 ㊳ (RF) (MD Play Mode)



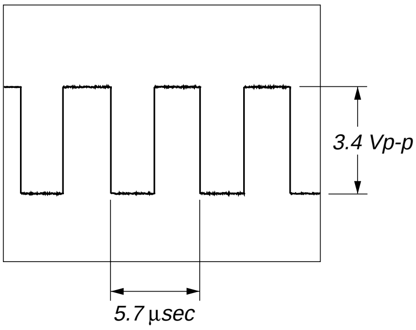
❺ IC152 ㉜ (CAPA–) (MD Play Mode)



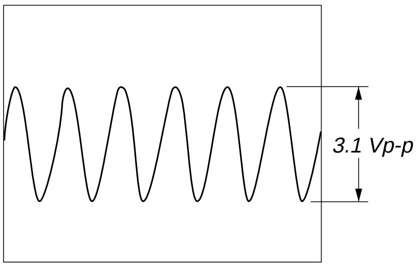
❻ IC152 ㉛ (CAPA+) (MD Play Mode)



❼ IC121 ㊿ (FS4)

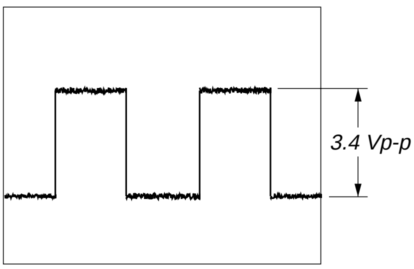


❽ IC121 ⑰ (OSCO)



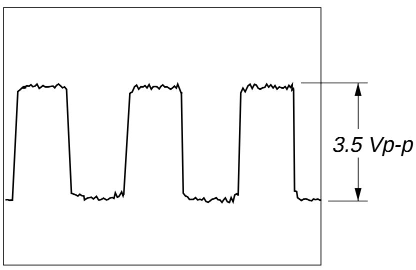
22.5792 MHz

❾ IC121 ㉕ (LRCK)



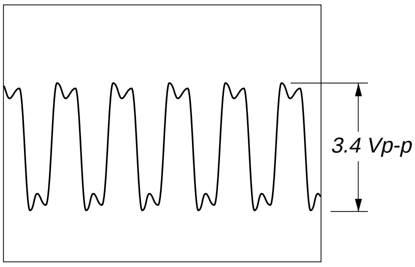
44.1 kHz

❿ IC121 ㉖ (XBCK)



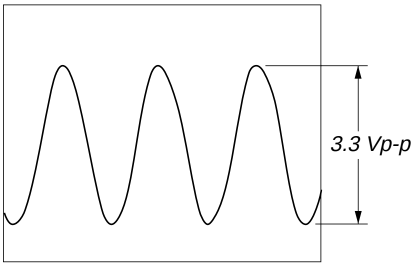
2.8224 MHz

⓫ IC121 ㉗ (FS256)



11.2896 MHz

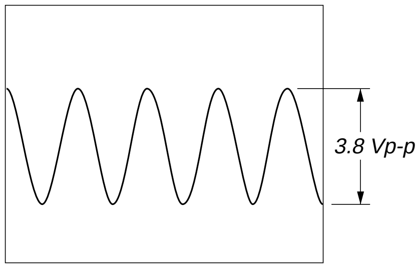
⓬ IC316 ⑬ (XOUT)



7 MHz

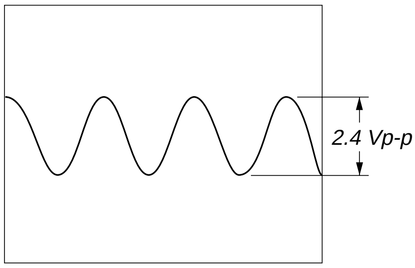
– MAIN Board –

❶ IC707 ⑪ (X1)



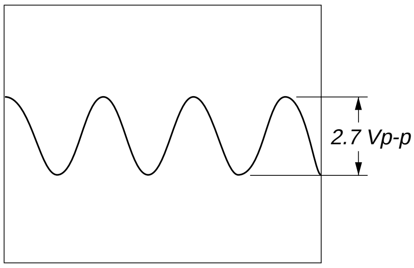
5 MHz

❷ IC707 ⑭ (XT1)



32 kHz

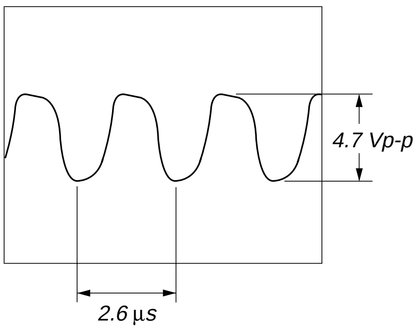
❸ IC710 ⑬



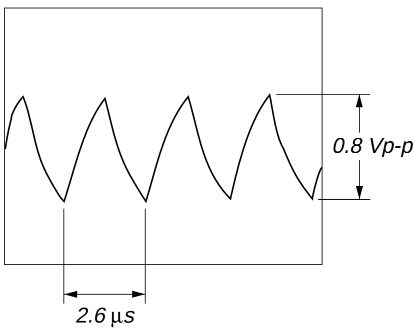
4.332 MHz

– PANEL Board –

❶ IC901 ⑳ (XOUT)

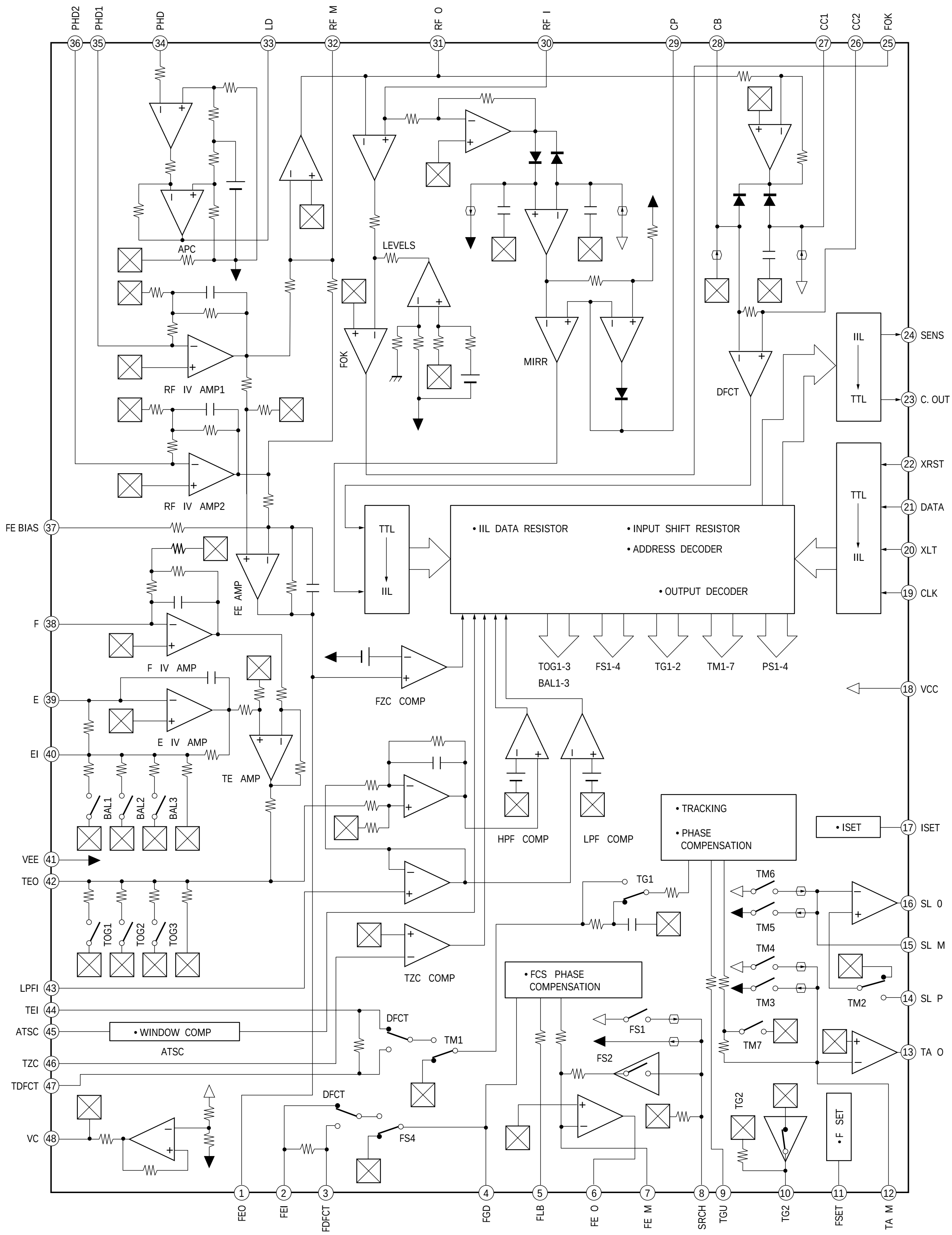


❷ IC901 ㉑ (XIN)

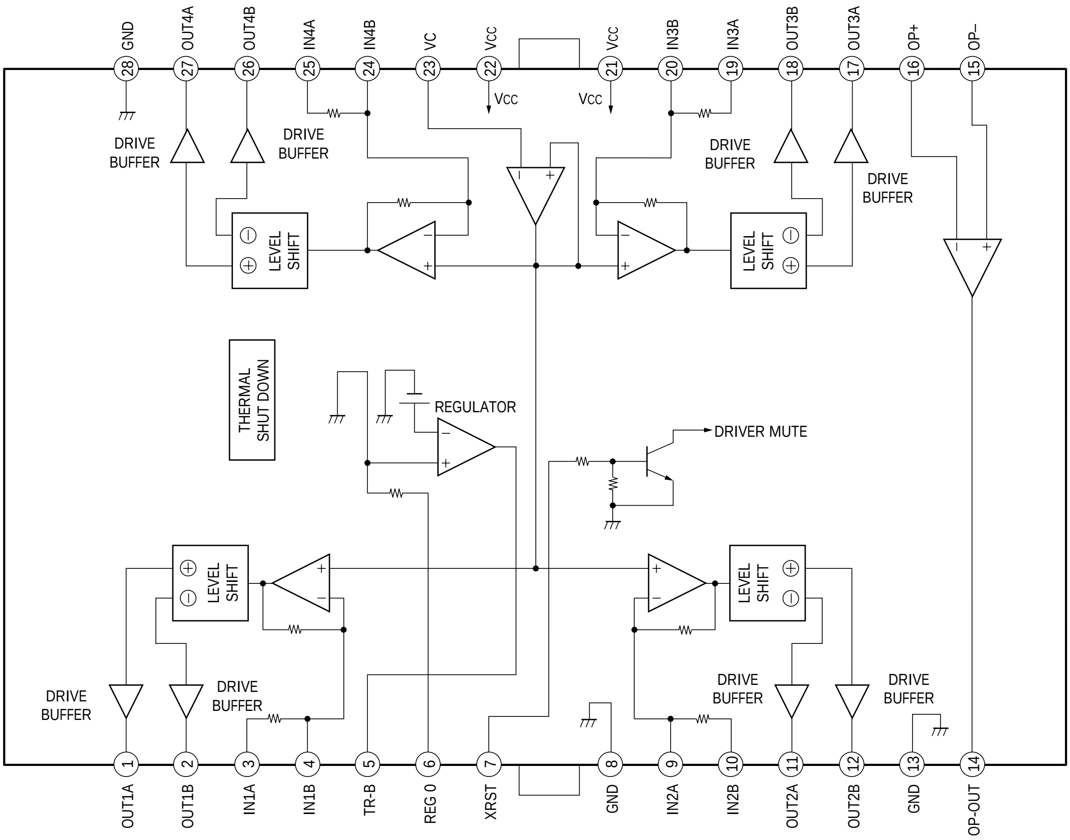


• **IC Block Diagrams**
– BD (CD) Board –

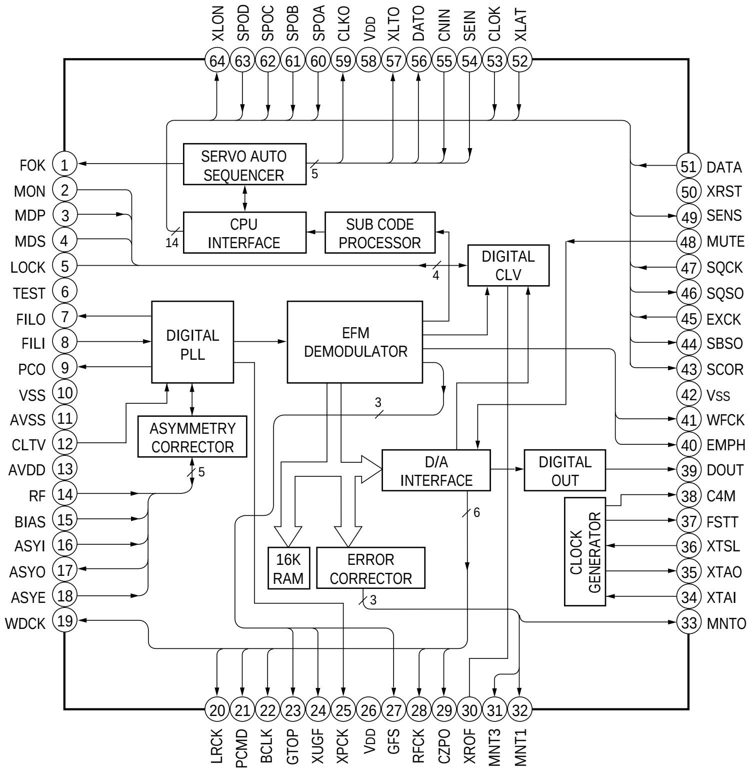
IC101 CXA1782BQ



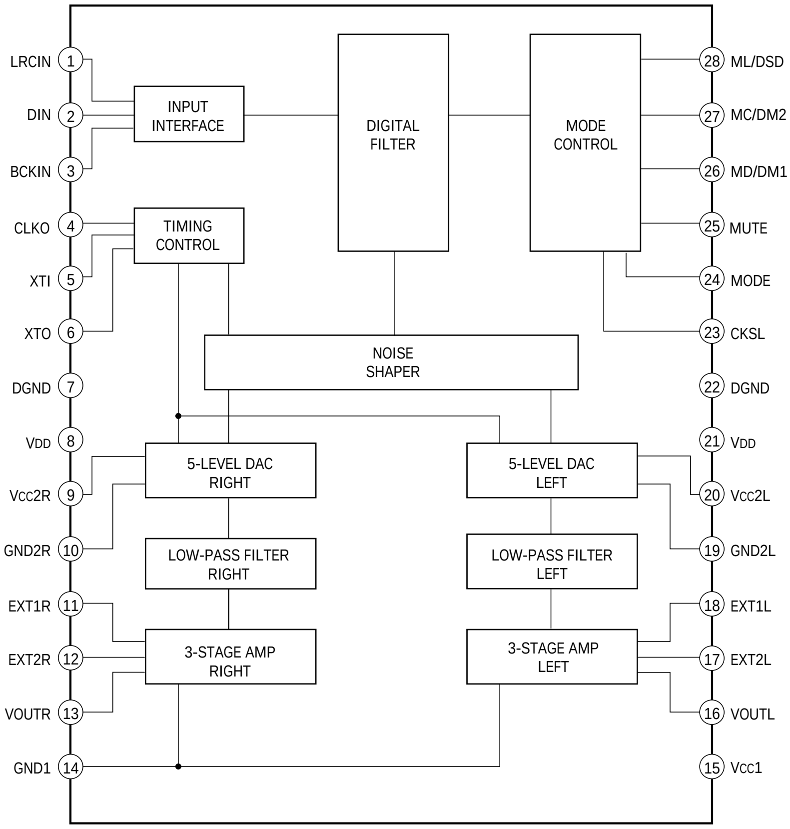
IC102 BA6397FP



IC103 CXD2507AQ

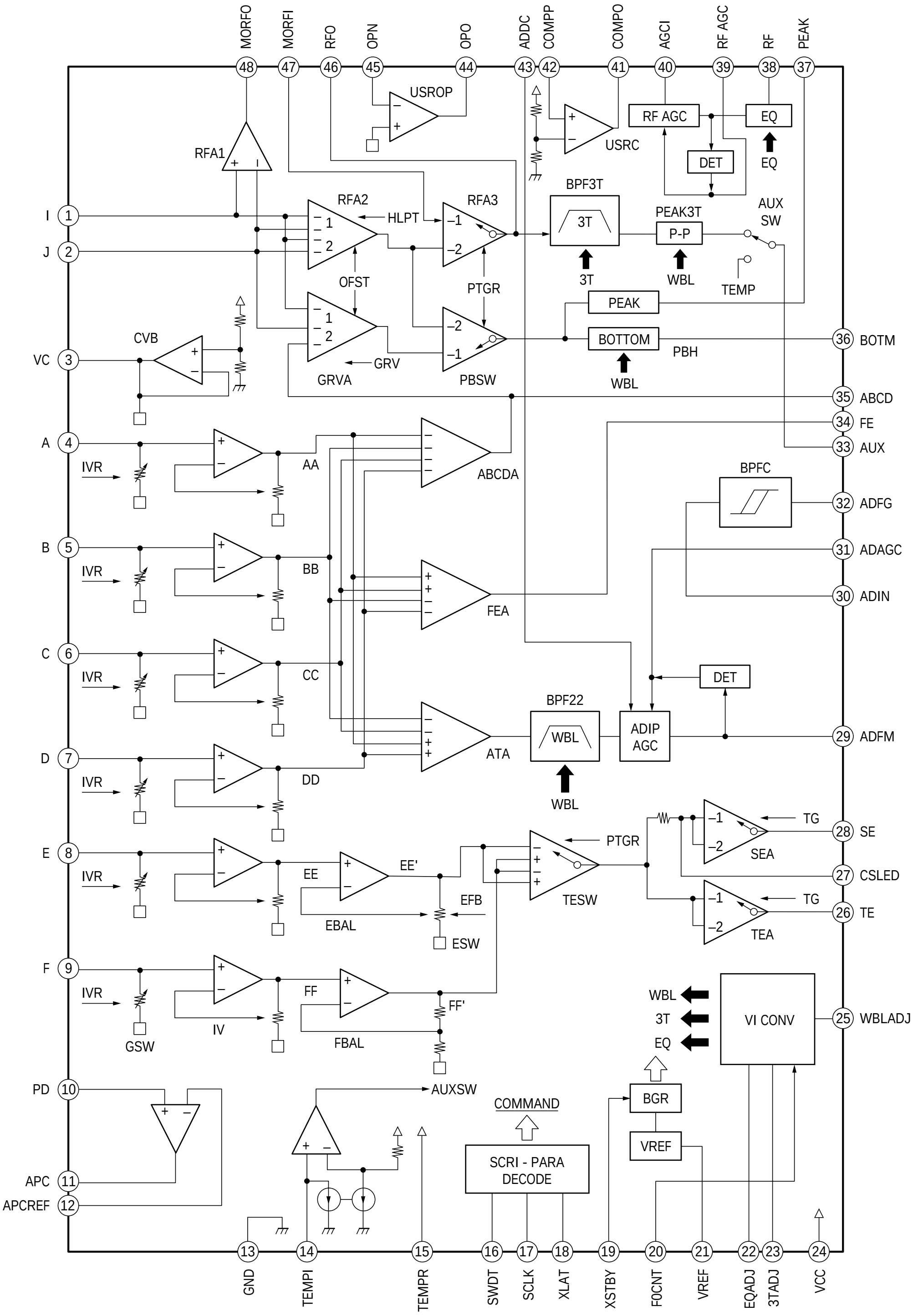


IC104 PCM1710U-B

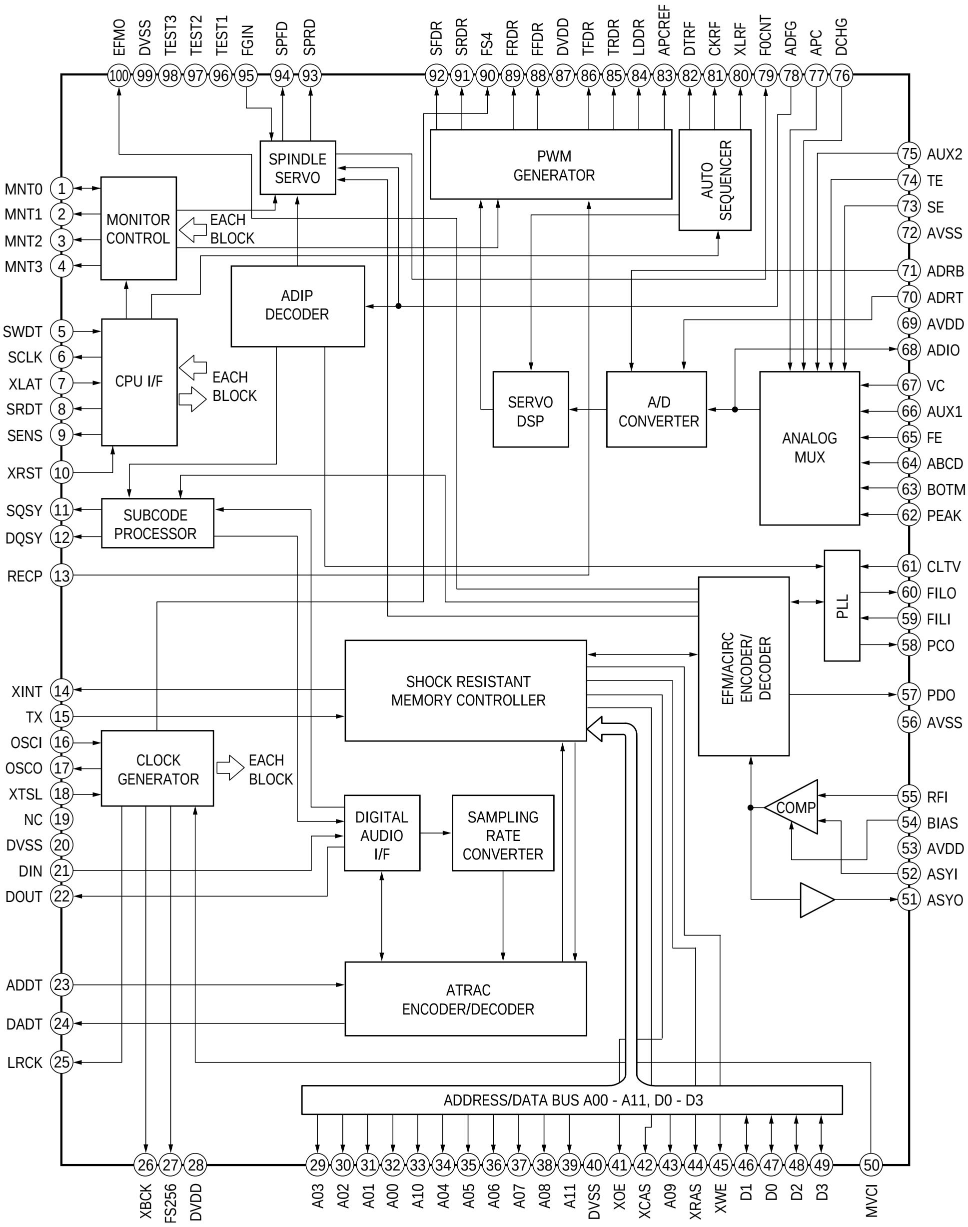


– BD (MD) Board –

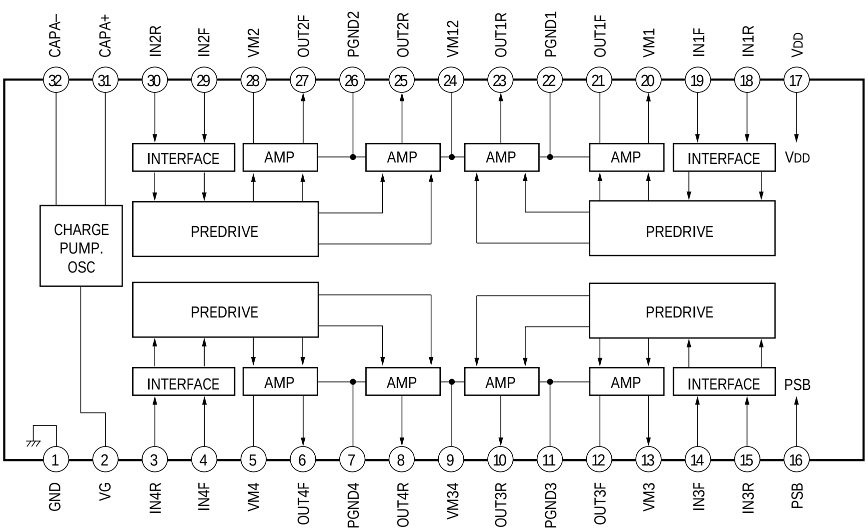
IC101 CXA2523AR



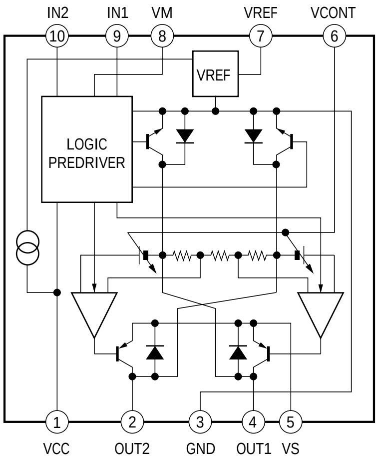
IC121 CXD2652AR



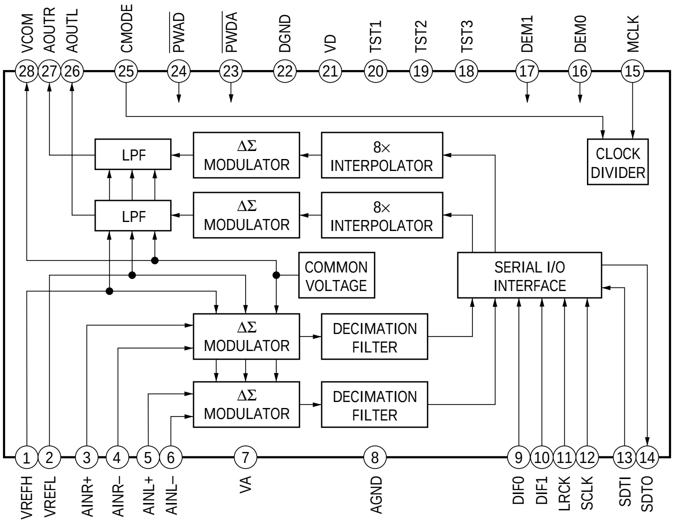
IC152 BH6511FS-E2



IC153 LB1830M-S-TE-L

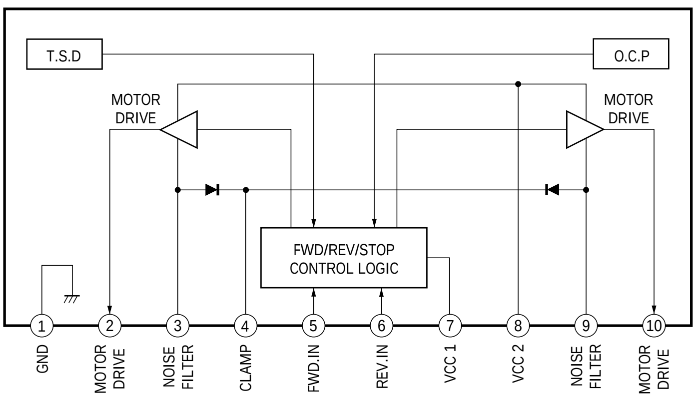


IC201 AK4520A-VF-E2

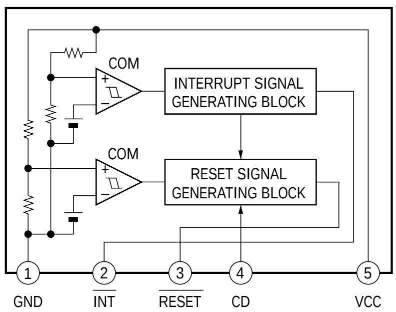


– MAIN Board –

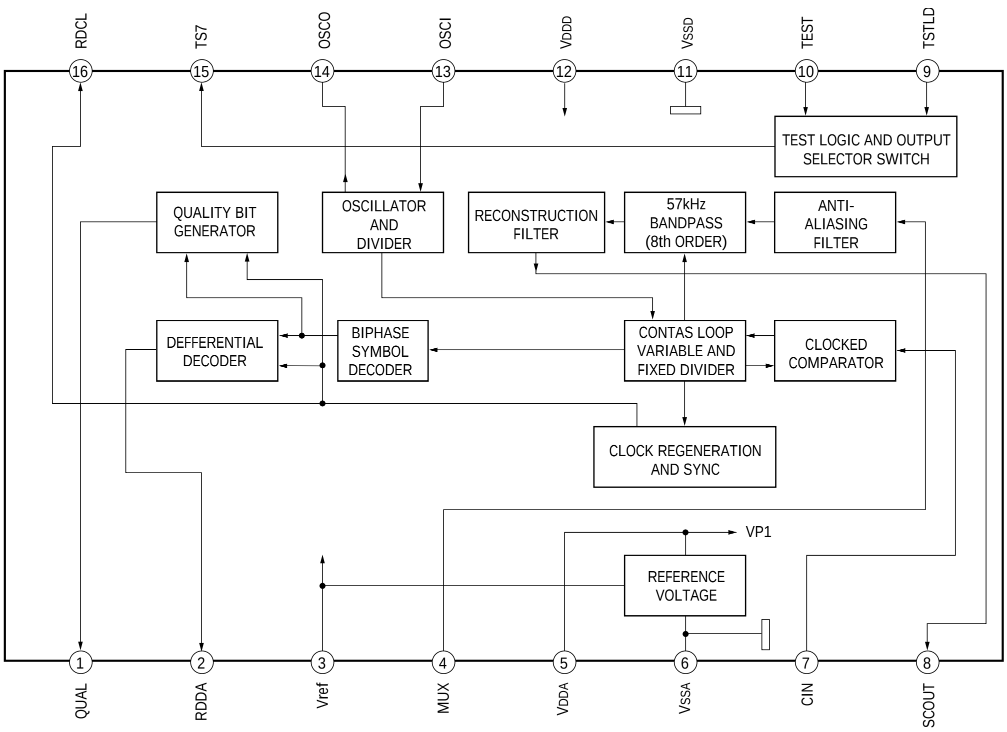
IC702 LB1641



IC706 M62016L

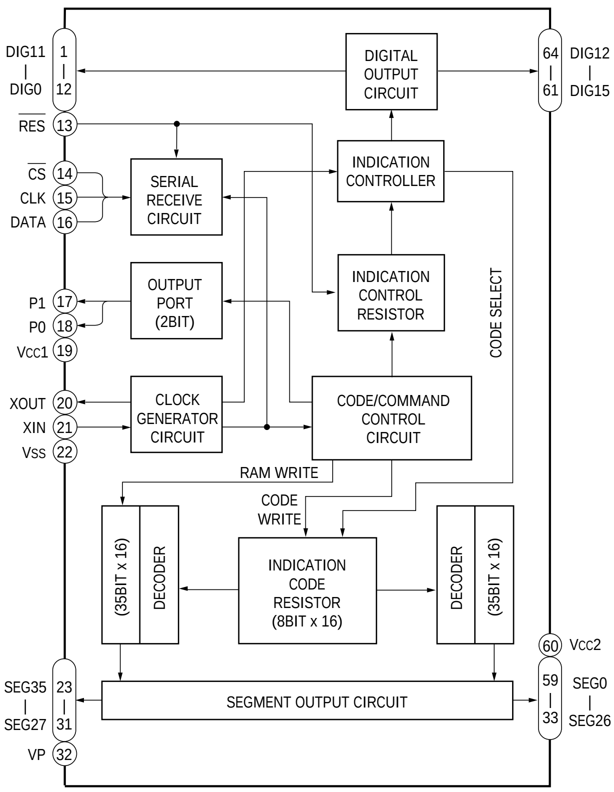


IC710 BU1922-E2 (AEP, UK)



– PANEL Board –

IC901 M66004M8FP



7-24. IC PIN FUNCTION DESCRIPTION

• BD (MD) BOARD IC101 CXA2523AR (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input from the optical pick-up block laser diode
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2652AR (IC121)
17	SCLK	I	Serial data transfer clock signal input from the CXD2652AR (IC121)
18	XLAT	I	Serial data latch pulse signal input from the CXD2652AR (IC121)
19	$\overline{\text{XSTBY}}$	I	Standby signal input terminal "L": standby (fixed at "H" in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2652AR (IC121)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2652AR (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2652AR (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz ± 1 kHz) output to the CXD2652AR (IC121)
33	AUX	O	Auxiliary signal (I_3 signal/temperature signal) output to the CXD2652AR (IC121)
34	FE	O	Focus error signal output to the CXD2652AR (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2652AR (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2652AR (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at "L")
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at "L")
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• **BD (MD) BOARD IC121 CXD2652AR**
(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	Focus OK signal output to the MD mechanism controller (IC316) "H" is output when focus is on ("L": NG)
2	MNT1 (SHCK)	O	Track jump detection signal output to the MD mechanism controller (IC316)
3	MNT2 (XBUSY)	O	Busy signal output to the MD mechanism controller (IC316)
4	MNT3 (SLOC)	O	Spindle servo lock status monitor signal output to the MD mechanism controller (IC316)
5	SWDT	I	Writing serial data signal input from the MD mechanism controller (IC316)
6	SCLK	I	Serial data transfer clock signal input from the MD mechanism controller (IC316)
7	XLAT	I	Serial data latch pulse signal input from the MD mechanism controller (IC316)
8	SRDT	O (3)	Reading serial data signal output to the MD mechanism controller (IC316)
9	SENS	O (3)	Internal status (SENSE) output to the MD mechanism controller (IC316)
10	$\overline{\text{XRST}}$	I	Reset signal input from the MD mechanism controller (IC316) "L": reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD mechanism controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD mechanism controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output
13	RECP	I	Laser power selection signal input from the MD mechanism controller (IC316) "H": recording mode, "L": playback mode
14	XINT	O	Interrupt status output to the MD mechanism controller (IC316)
15	TX	I	Recording data output enable signal input from the MD mechanism controller (IC316) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input terminal
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal
18	XTSL	I	Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set)
19	RVDD	—	Power supply terminal (+3.3V) (digital system)
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode (for digital in)
22	DOUT	O	Digital audio signal output terminal when playback mode (for digital out) Not used
23	ADDT	I	Recording data input from the A/D, D/A converter (IC201)
24	DADT	O	Playback data output to the A/D, D/A converter (IC201)
25	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the A/D, D/A converter (IC201)
26	XBCK	O	Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC201)
27	FS256	O	Clock signal (11.2896 MHz) output to the A/D, D/A converter (IC201)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29 to 32	A03 to A00	O	Address signal output to the D-RAM (IC124)
33	A10	O	Address signal output to the external D-RAM Not used (open)
34 to 38	A04 to A08	O	Address signal output to the D-RAM (IC124)
39	A11	O	Address signal output to the external D-RAM Not used (open)
40	DVSS	—	Ground terminal (digital system)
41	$\overline{\text{XOE}}$	O	Output enable signal output to the D-RAM (IC124) "L" active
42	$\overline{\text{XCAS}}$	O	Column address strobe signal output to the D-RAM (IC124) "L" active
43	A09	O	Address signal output to the D-RAM (IC124)
44	$\overline{\text{XRAS}}$	O	Row address strobe signal output to the D-RAM (IC124) "L" active
45	$\overline{\text{XWE}}$	O	Write enable signal output to the D-RAM (IC124) "L" active
46	D1	I/O	Two-way data bus with the D-RAM (IC124)

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
47	D0	I/O	Two-way data bus with the D-RAM (IC124)
48	D2	I/O	
49	D3	I/O	
50	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
51	ASYO	O	Playback EFM full-swing output terminal
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input terminal
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
55	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC101)
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM Not used (open)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC101)
65	FE	I (A)	Focus error signal input from the CXA2523AR (IC101)
66	AUX1	I (A)	Auxiliary signal (I_3 signal/temperature signal) input from the CXA2523AR (IC101)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC101)
68	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
72	AVSS	—	Ground terminal (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523AR (IC101)
74	TE	I (A)	Tracking error signal input from the CXA2523AR (IC101)
75	AUX2	I (A)	Auxiliary signal input terminal Not used (fixed at “H”)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at “H”)
78	ADFG	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the CXA2523AR (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523AR (IC101)
80	XLRF	O	Serial data latch pulse signal output to the CXA2523AR (IC101)
81	CKRF	O	Serial data transfer clock signal output to the CXA2523AR (IC101)
82	DTRF	O	Writing serial data output to the CXA2523AR (IC101)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (–) output to the BH6511FS (IC152)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC152)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC152)
89	FRDR	O	Focus servo drive PWM signal (–) output to the BH6511FS (IC152)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X’tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal (–) output to the BH6511FS (IC152)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC152)

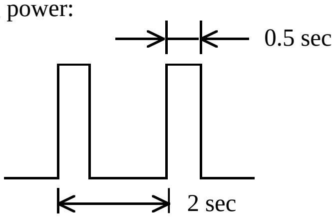
* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
93	SPRD	O	Spindle servo drive PWM signal (–) output to the BH6511FS (IC152)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC152)
95	FGIN	I	Input terminal for the test (fixed at “L”)
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• **BD (MD) BOARD IC316 M30610MCA-272FP (MD MECHANISM CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1	JOG0	I	Rotary encoder jog dial pulse input terminal Not used (fixed at "H")
2	JOG1	I	Rotary encoder jog dial pulse input terminal Not used (fixed at "H")
3	DAOUT0	O	Monitor output terminal for the test C1 error rate is output when test mode
4	DAOUT1	O	Monitor output terminal for the test ADER is output when test mode
5	SQSY	I	Subcode Q sync (SCOR) input from the CXD2652AR (IC121) "L" is input every 13.3 msec Almost all, "H" is input
6	REMCON	I	Remote control signal input terminal Not used (fixed at "H")
7	EMP	O	Emphasis control signal output to the A/D, D/A converter (IC201)
8	BYTE	I	External data bus line byte selection signal input "L": 16 bit, "H": 8 bit (fixed at "L")
9	CNVSS	—	Ground terminal
10	XT-IN	I	Sub system clock input terminal Not used (fixed at "L")
11	XT-OUT	O	Sub system clock output terminal Not used (pull down)
12	$\overline{\text{SYSTEM-RST}}$	I	System reset signal input from the reset signal generator (IC706) and master controller (IC707) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
13	XOUT	O	Main system clock output terminal (7 MHz)
14	GND	—	Ground terminal
15	XIN	I	Main system clock input terminal (7 MHz)
16	+3.3V	—	Power supply terminal (+3.3V)
17	$\overline{\text{NMI}}$	I	Non-maskable interrupt input terminal (fixed at "H" in this set)
18	AMUTE	O	Audio line muting on/off control signal output terminal "L": line muting on Not used (pull down)
19	$\overline{\text{PWR-DWN}}$	I	Power down detection signal input terminal "L": power down, normally: "H"
20	DQSY	I	Digital In U-bit CD format subcode Q sync (SCOR) input from the CXD2652AR (IC121) "L" is input every 13.3 msec Almost all, "H" is input
21	STB	O	Strobe signal output to the power supply circuit "H": power on, "L": standby mode Not used (pull down)
22	$\overline{\text{DARST}}$	O	Reset signal output terminal "L": reset Not used (pull down)
23	XINT	I	Interrupt status input from the CXD2652AR (IC121)
24	$\overline{\text{DA-EN}}$	O	Enable signal output to the A/D, D/A converter (IC201) (for D/A converter block) "L": enable
25	$\overline{\text{AD-EN}}$	O	Enable signal output to the A/D, D/A converter (IC201) (for A/D converter block) "L": enable
26	MEC-BUSY	O	MD mechanism controller busy status monitor output to the master controller (IC707)
27	FLCS	O	Chip select signal output terminal Not used (pull down)
28	FLCLK	O	Display serial data transfer clock signal output terminal Not used (pull down)
29	—	I	Not used (fixed at "L")
30	FLDATA	O	Display serial data output terminal Not used (pull down)
31	TXD	O	UART communication data output to the master controller (IC707)
32	RXD	I	UART communication data input from the master controller (IC707)
33	CLK	I	Serial clock signal input from the master controller (IC707)
34	MAS-BUSY	I	Master controller busy status monitor input from the master controller (IC707)
35	SWDT	O	Writing data output to the CXD2652AR (IC121)
36	SRDT	I	Reading data input from the CXD2652AR (IC121)
37	SCLK	O	Serial clock signal output to the CXD2652AR (IC121)
38	XLAT	O	Serial data latch pulse signal output to the CXD2652AR (IC121)
39	—	I	Not used (fixed at "L")
40	$\overline{\text{DIG-RST}}$	O	Reset signal output to the CXD2652AR (IC121) and BH6511FS (IC152) "L": reset

Pin No.	Pin Name	I/O	Function
41	SENS	I	Internal status (SENSE) input from the CXD2652AR (IC121)
42	SCTX	O	Recording data output enable signal output to the CXD2652AR (IC121) and overwrite head driver (IC181) Writing data transmission timing output (Also serves as the magnetic head on/off output)
43	XINT	O	Not used (pull down)
44	WRPWR	O	Laser power select signal output to the CXD2652AR (IC121) and HF module switch circuit “L”: playback mode, “H”: recording mode
45	MNT3	I	Spindle servo lock status monitor signal input from the CXD2652AR (IC121)
46	MNT2	I	Busy signal input from the CXD2652AR (IC121)
47	MNT1	I	Track jump detection signal input from the CXD2652AR (IC121)
48	MNT0	I	Focus OK signal input from the CXD2652AR (IC121) “H” is input when focus is on (“L”: NG)
49	LDON	O	Laser diode on/off control signal output to the automatic power control circuit “H”: laser on
50	MOD	O	Laser modulation select signal output to the HF module switch circuit Playback power: “H”, Stop: “L”, Recording power: 
51	LDIN	O	Motor control signal output to the loading motor driver (IC153) “L” active *1
52	LDOUT	O	Motor control signal output to the loading motor driver (IC153) “L” active *1
53	LD-LOW	O	Loading motor drive voltage control signal output for the loading motor driver (IC153) “H” active
54	PROTECT	I	Rec-proof claw detect input from the protect detect switch (S683) “H”: write protect
55	REFLECT	I	Detection input from the disc reflection rate detect switch (S682) “L”: high reflection rate disc, “H”: low reflection rate disc
56	PACK-IN	I	Detection input from the disc detect switch Not used (fixed at “H”)
57	PACK-OUT	I	Detection input from the loading-out detect switch (S686) “L” at a load-out position, others: “H”
58	CHUCK-IN	I	Detection input from the disc chucking-in detect switch (S685) “L”: chucking
59	LIMIT-IN	I	Detection input from the sled limit-in detect switch (S681) The optical pick-up is inner position when “L”
60	REC-P	I	Detection input from the recording position detect switch (S688) “L” active
61	PB-P	I	Detection input from the playback position detect switch (S687) “L” active
62	+3.3V	—	Power supply terminal (+3.3V)
63	—	I	Not used (fixed at “L”)
64	GND	—	Ground terminal
65 to 78	—	I	Not used (fixed at “L”)
79	SDA	I/O	Two-way data bus with the EEPROM (IC171)
80	SCL	O	Serial clock signal output to the EEPROM (IC171)

*1 Loading motor (M903) control

Terminal \ Mode	LOADING	EJECT	BRAKE	RUN IDLE
LDIN (pin 51)	“L”	“H”	“L”	“H”
LDOUT (pin 52)	“H”	“L”	“L”	“H”

Pin No.	Pin Name	I/O	Function
81, 82	—	I	Not used (fixed at “L”)
83	POWER	O	Power on/off control signal output terminal Not used (pull down)
84 to 90	—	I	Not used (fixed at “L”)
91 to 93	KEY0 to KEY2	I	Key input terminal (A/D input) Not used (fixed at “H”)
94	—	I	Not used (fixed at “L”)
95	SOURCE	I	Not used (fixed at “L”)
96	AVSS	—	Ground terminal (for A/D converter)
97	—	I	Not used (fixed at “L”)
98	VREF3.3V	I	Reference voltage (+3.3V) input terminal (for A/D converter)
99	+3.3V	—	Power supply terminal (+3.3V) (for analog system)
100	—	I	Not used (fixed at “L”)

- **MAN BOARD IC707 μPD78078GF-083-3BA (MASTER CONTROLLER (CD MECHANISM CONTROL/SYSTEM CONTROL))**

Pin No.	Pin Name	I/O	Function
1	VER	I	Destination setting terminal Not used (open)
2	VER	I	Destination setting terminal US, Canadian models: fixed at “L”, Other models: open
3	VER	I	Destination setting terminal US, Canadian, Singapore, Hong Kong models: fixed at “L”, Other models: open
4	VER	I	Destination setting terminal Not used (open)
5 to 7	NC	O	Not used (open)
8	—	O	Not used (open)
9	IC	—	Connected to ground
10	X2	O	Main system clock output terminal (5 MHz)
11	X1	I	Main system clock input terminal (5 MHz)
12	VDD	—	Power supply terminal (+5V)
13	XT2	O	Sub system clock output terminal (32 kHz)
14	XT1	I	Sub system clock input terminal (32 kHz)
15	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC708) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
16	AU-BUS IN	I	Audio bus signal input terminal
17	AU-BUS OUT	O	Audio bus signal output terminal
18	ENC/A	I	Rotary encoder jog dial pulse input terminal (A phase input) Not used (fixed at “L”)
19	ENC/B	I	Rotary encoder jog dial pulse input terminal (B phase input) Not used (fixed at “L”)
20	RDS/CLK	I	RDS serial data transfer clock signal input from the RDS decoder (IC710) Used for the AEP, UK models
21	RDS/DATA	I	RDS serial data input from the RDS decoder (IC710) Used for the AEP, UK models
22	SCOR	I	Subcode sync (S0+S1) detection signal input from the CXD2507AQ (IC103)
23	AVDD	—	Power supply terminal (+5V) (for A/D converter)
24	AVREF0	I	Reference voltage (+5V) input terminal (for A/D converter)
25	KEY0	I	Key input terminal (A/D input) I/⏻ (power) key input (S903)
26	KEY1	I	Key input terminal (A/D input) CD ■, CD ▶❚❚, CD ≙, MD ■, MD ▶❚❚, MD ≙, VOLUME +/– keys input (S902, 905, 907, 909, 911, 913 to 915)
27	KEY2	I	Key input terminal (A/D input) FUNCTION, CD/MD ▶▶ ▶▶❙ TUNING +, TUNER/BAND, CD/MD ❙◀◀ ◀◀ TUNING –, REC, CD-MD SYNC keys input (S901, 904, 906, 908, 910, 912)
28 to 30	—	O	Not used (open)
31	RTS	O	Master controller busy status monitor output to the MD mechanism controller (IC316)
32	MD-POWER	O	MD system power supply on/off control signal output terminal Not used (open)
33	AVSS	—	Ground terminal (for A/D converter)
34	$\overline{\text{POWER-ON}}$	O	System power supply on/off control signal output terminal “L”: power on, “H”: standby
35	MD-REST	O	Reset signal output to the MD mechanism controller (IC316) “H”: reset
36	AVREF1	I	Reference voltage (+5V) input terminal (for A/D converter)
37	RXD	I	UART communication data input from the MD mechanism controller (IC316)
38	TXD	O	UART communication data output to the MD mechanism controller (IC316)
39	MD-CLK	O	Serial clock signal output to the MD mechanism controller (IC316)
40	VSS	—	Ground terminal
41	CTS	I	MD mechanism controller busy status monitor input from the MD mechanism controller (IC316)
42	DATA	O	Display serial data output to the FL driver (IC901)
43	CLOCK	O	Display serial data transfer clock signal output to the FL driver (IC901)
44	$\overline{\text{CS}}$	O	Chip select signal output to the FL driver (IC901) “L”: data output

Pin No.	Pin Name	I/O	Function
45	$\overline{\text{RESET}}$	O	Reset signal output to the FL driver (IC901) "L": reset
46	SUBQ	I	Subcode Q data input from the CXD2507AQ (IC103)
47	NC	O	Not used (open)
48	SQCLK	O	Subcode Q data reading clock signal output to the CXD2507AQ (IC103)
49	CLOCK	O	Serial data transfer clock signal output to the CXD2507AQ (IC103) and PCM1710U (IC104)
50	DATA	O	Serial data output to the CXD2507AQ (IC103) and PCM1710U (IC104)
51	XLT	O	Serial data latch pulse signal output to the CXD2507AQ (IC103)
52	PRGL (DF-LAT)	O	Serial data latch pulse signal output to the PCM1710U (IC104)
53	SENSE	I	Internal status input from the CXD2507AQ (IC103)
54	ADJ	I	Setting terminal for the CD test mode "L": CD test mode Normally: fixed at "H"
55	IN-SW	I	Detection input from the disc detect switch (S104) "L": disc in
56	OUT-SW	I	Detection input from the disc detect (S104) "L": disc out
57	LOAD-OUT	O	Motor control signal output to the CD lid open/close motor driver (IC702) "L" active *1
58	LOAD-IN	O	Motor control signal output to the CD lid open/close motor driver (IC702) "L" active *1
59	FOCUS-SW	O	Focus gain control signal output to the CXA1782BQ (IC101) "L": normal, "H": down
60	$\overline{\text{BD-REST}}$	O	Reset signal output to the CXA1782BQ (IC101), BA6297FP (IC102) and CXD2507AQ (IC103) "L": reset
61	CD-POWER	O	CD servo system power supply on/off control signal output terminal "H": power on
62	ST-POWER	O	Tuner system power supply on/off control signal output terminal "H": power on Not used (open)
63	D.IN.SELECT	O	Digital input selection signal output terminal Not used (open)
64 to 66	—	O	Not used (open)
67	LED-MD DISC	O	LED drive signal output of the MD disc slot indicator (D906) "L": LED on
68	LED-MD REC	O	LED drive signal output of the REC indicator (D905) "L": LED on
69	LED-CD PAUSE	O	LED drive signal output of the CD ❚❚ indicator (D907 amber) "L": LED on
70	LED-CD PLAY	O	LED drive signal output of the CD ► indicator (D907 green) "L": LED on
71	VSS	—	Ground terminal
72	LED-MD PAUSE	O	LED drive signal output of the MD ❚❚ indicator (D903 amber) "L": LED on
73	LED-MD PLAY	O	LED drive signal output of the MD ► indicator (D903 green) "L": LED on
74	DBFB	O	DBFB on/off control signal output terminal "L": DBFB on
75	RECOUT-MUTE	O	Muting on/off control signal output for the TAPE OUT signal "L": muting on
76	MUTE	O	Audio muting on/off control signal output terminal
77	ATT/6DB	O	–6 dB attenuator control signal output for the TAPE IN signal "L": attenuator on
78	DATA	O	Serial data output to the M62428AFP (IC705)
79	CLOCK	O	Serial data transfer clock signal output to the M62428AFP (IC705)
80	LAT	O	Serial data latch pulse signal output to the M62428AFP (IC705)
81	GND	—	Ground terminal
82	STEREO	I	FM stereo detection signal input from the FM/AM tuner unit "L": stereo
83	TUNED	I	Tuning detection signal input from the FM/AM tuner unit "L": tuned, "H"; detuned
84	DATA-IN	I	PLL serial data input from the FM/AM tuner unit
85	DATA-OUT	O	PLL serial data output to the FM/AM tuner unit
86	CLOCK	O	PLL serial data transfer clock signal output to the FM/AM tuner unit

*1 CD lid open/close motor (M103) control

Terminal \ Mode	OFF	OPEN	CLOSE	BRAKE
LOAD-OUT (pin ㊼)	"H"	"L"	"H"	"L"
LOAD-IN (pin ㊽)	"H"	"H"	"L"	"L"

Pin No.	Pin Name	I/O	Function
87	CE	O	PLL serial chip enable signal output to the FM/AM tuner unit
88	ST-MUTE	O	Tuner muting on/off control signal output to the FM/AM tuner unit "L": muting on
89	FM/AM SELECT	O	FM/AM selection signal output terminal Not used (open)
90	SIRCS	I	Sircs signal input from the remote control receiver (IC902)
91	—	O	Not used (open)
92	—	I	Not used (fixed at "L")
93	FAN SPEED	O	Fan motor speed control signal output terminal Not used (open)
94	FAN STOP	O	Fan motor on/off control signal output terminal Not used (open)
95	—	O	Not used (open)
96	MD1	I	Setting terminal for the CPU operational mode (fixed at "H" in this set)
97 to 99	—	I	Not used (fixed at "L")
100	BACKUP	I	System reset signal input from the reset signal generator (IC708) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"

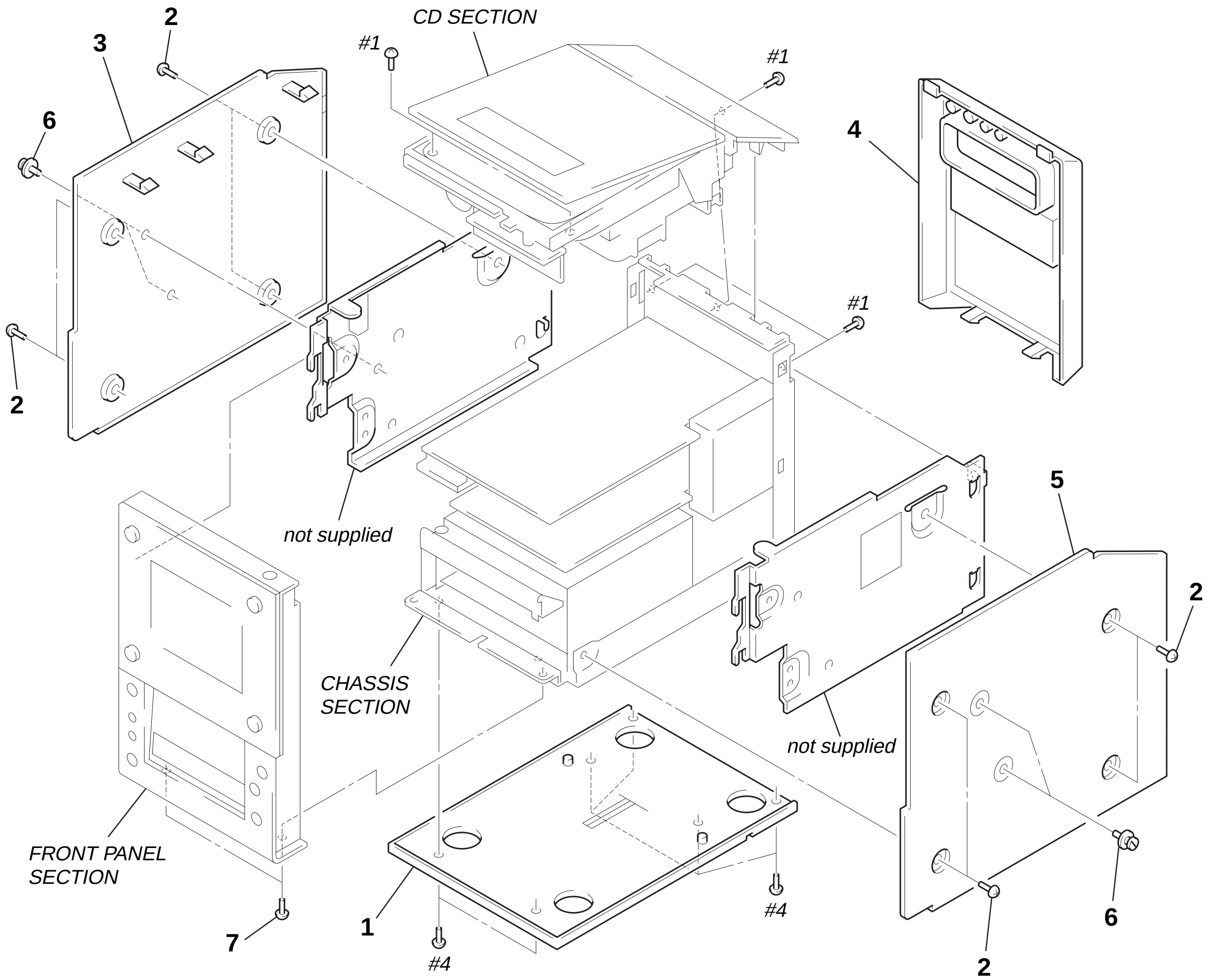
SECTION 8
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Abbreviation
  CND : Canadian
  HK : Hong Kong
  SP : Singapore
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

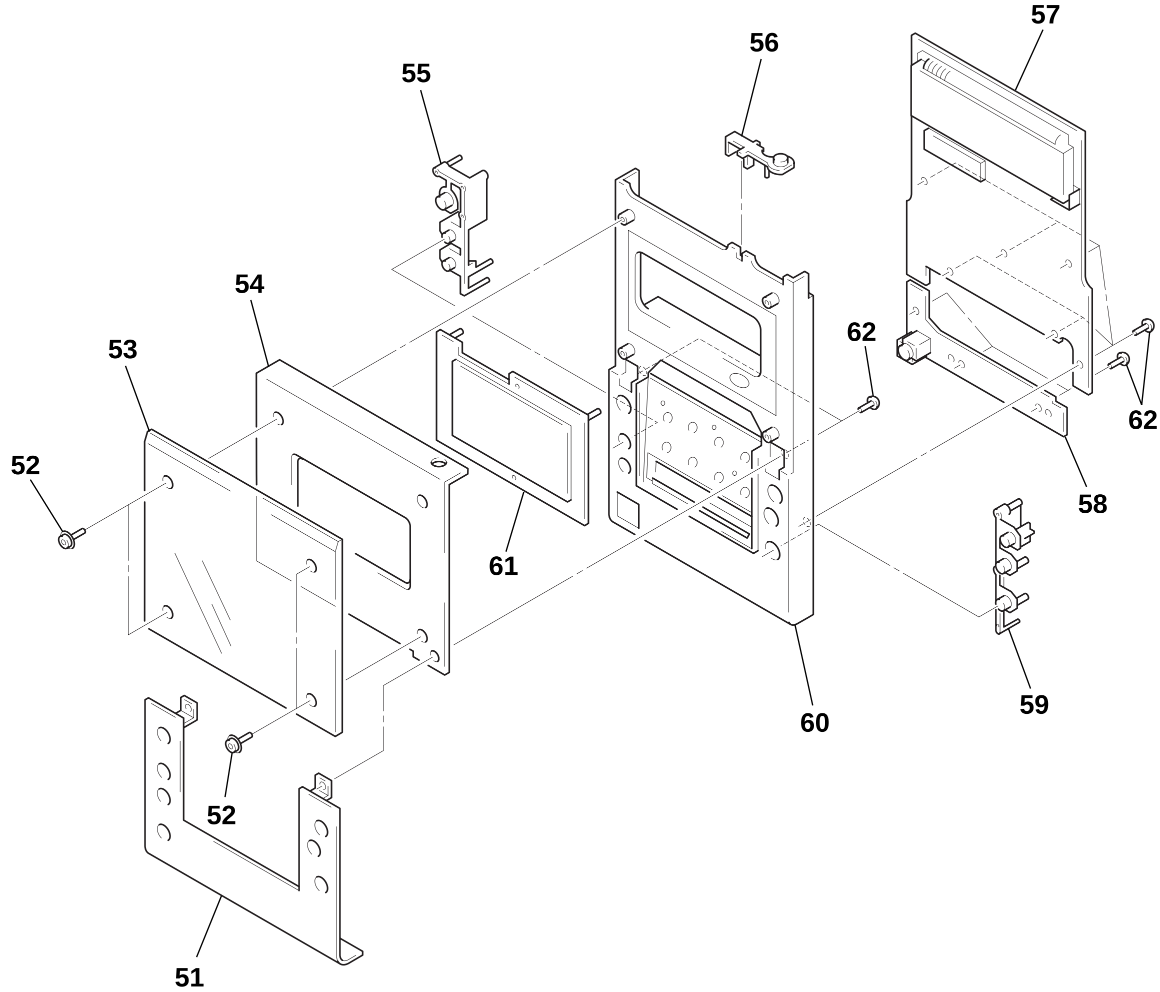
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) PANEL, COVER SECTION



Ref. No.	Part No.	Description	Remark
1	4-212-516-01	COVER (BOTTOM) (AEP, UK)	
1	4-212-516-11	COVER (BOTTOM) (SP, HK)	
1	4-212-516-31	COVER (BOTTOM) (US, CND)	
2	3-363-099-01	SCREW (CASE 3 TP2)	
3	4-212-514-01	PANEL (L), SIDE	
4	4-212-517-01	COVER (REAR)	
5	4-212-515-01	PANEL (R), SIDE	
6	4-212-957-01	SCREW, SP FITTING ORNAMENTAL	
7	3-704-515-11	SCREW (BV/RING)	

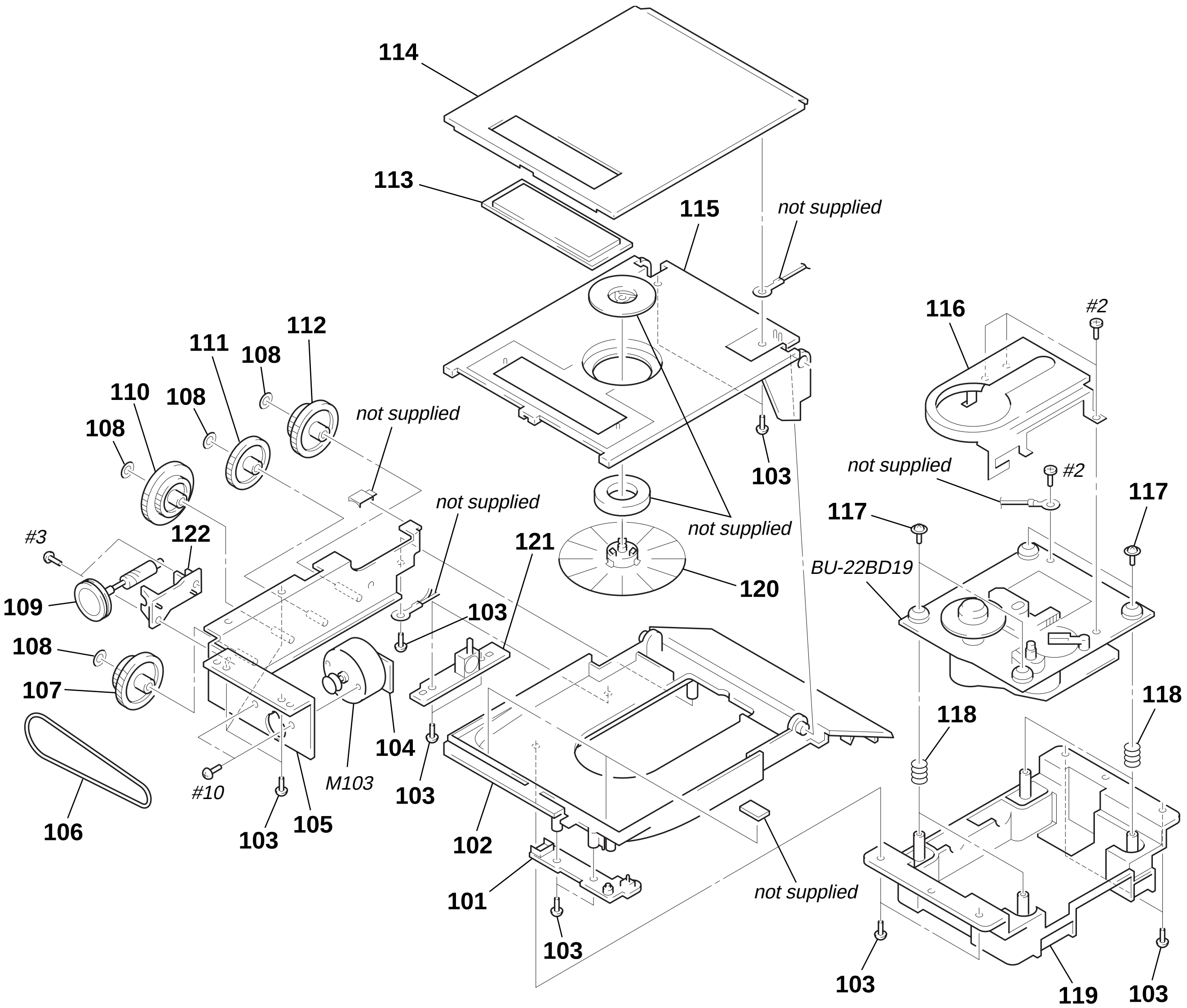
(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	4-212-503-01	PLATE (BUTTON), ORNAMENTAL	
52	4-212-531-01	SCREW	
53	4-212-103-01	PLATE (GLASS), ORNAMENTAL	
54	4-212-502-01	PLATE (INDICATION WINDOW)	
55	4-212-532-01	BUTTON (POWER) (+, –, ⏏)	
56	4-212-507-01	BUTTON (EJECT) (⏏)	

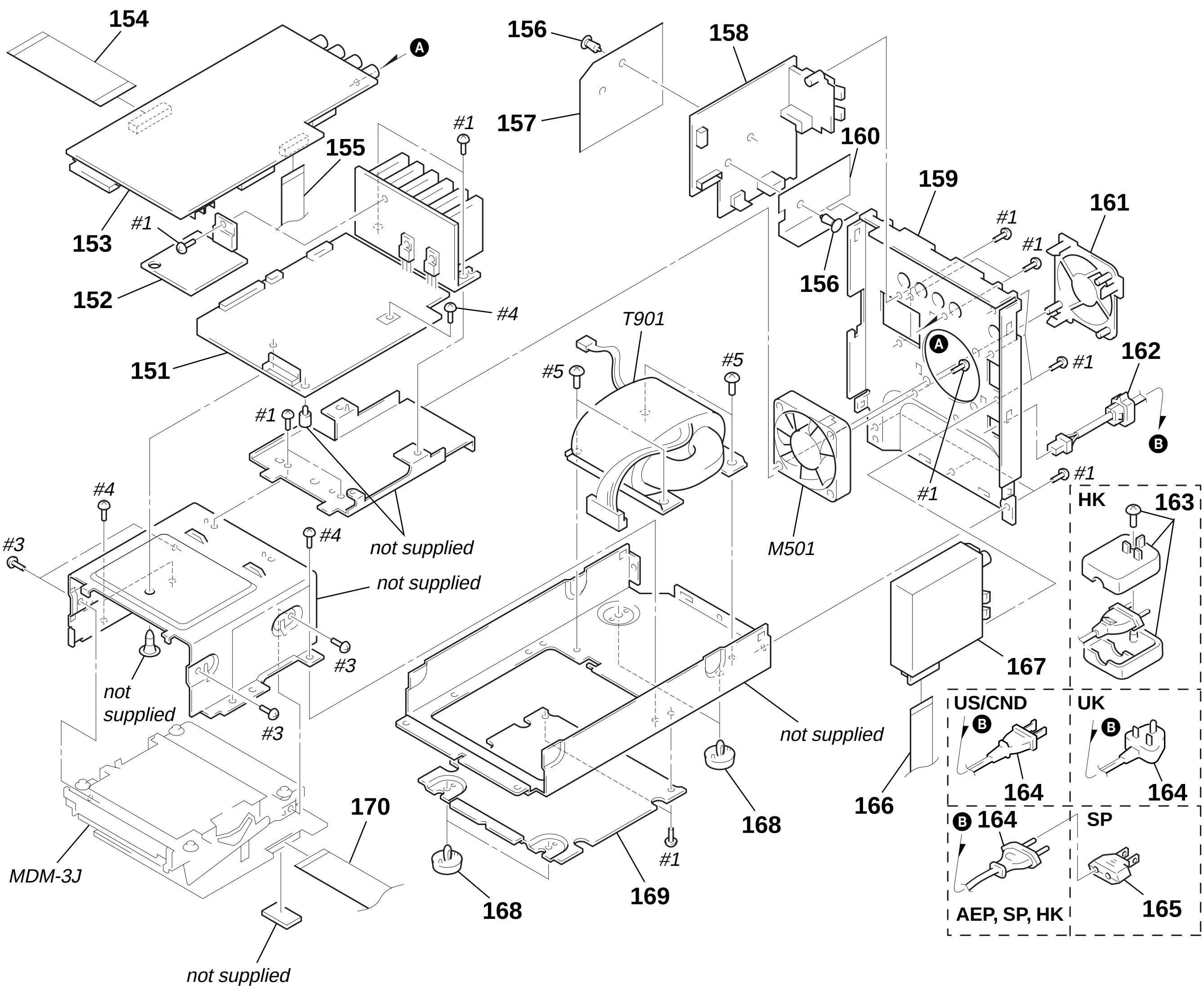
Ref. No.	Part No.	Description	Remark
* 57	A-4417-231-A	PANEL BOARD, COMPLETE	
* 58	1-671-424-11	HP BOARD	
59	4-212-533-01	BUTTON (VOL)	
60	X-4950-365-1	PANEL ASSY, FRONT	
61	4-212-528-01	WINDOW, INDICATION	
62	4-951-620-41	SCREW (2.6), +BVTP	

(3) CD SECTION



Ref. No.	Part No.	Description	Remark
* 101	1-671-426-11	EJECT BOARD	
102	4-212-497-01	TABLE, DISC	
103	4-951-620-41	SCREW (2.6), +BVTP	
* 104	1-671-428-11	MOTOR BOARD	
105	X-4950-366-1	BRACKET (GEAR) ASSY	
106	4-212-529-01	BELT	
107	4-212-492-01	GEAR (A)	
108	3-325-697-01	WASHER	
109	X-4950-379-1	GEAR ASSY, WORM	
110	4-212-493-01	GEAR (B)	
111	4-212-494-01	GEAR (C)	
112	4-212-708-01	GEAR (D)	
113	4-212-525-01	WINDOW (CD)	
114	4-212-504-01	PLATE (LID), ORNAMENTAL	
115	4-212-495-01	ARM, CHUCKING	
116	4-212-500-01	PLATE (BU), ORNAMENTAL	
117	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
118	4-959-996-01	SPRING (932), COMPRESSION	
119	4-212-499-01	HOLDER (BU)	
120	4-993-142-11	PULLEY (L), PRESS	
* 121	1-671-427-11	SENSOR BOARD	
122	4-212-709-01	BRACKET (WORM)	
M103	A-4411-278-A	MOTOR ASSY (CD LID OPEN/CLOSE)	

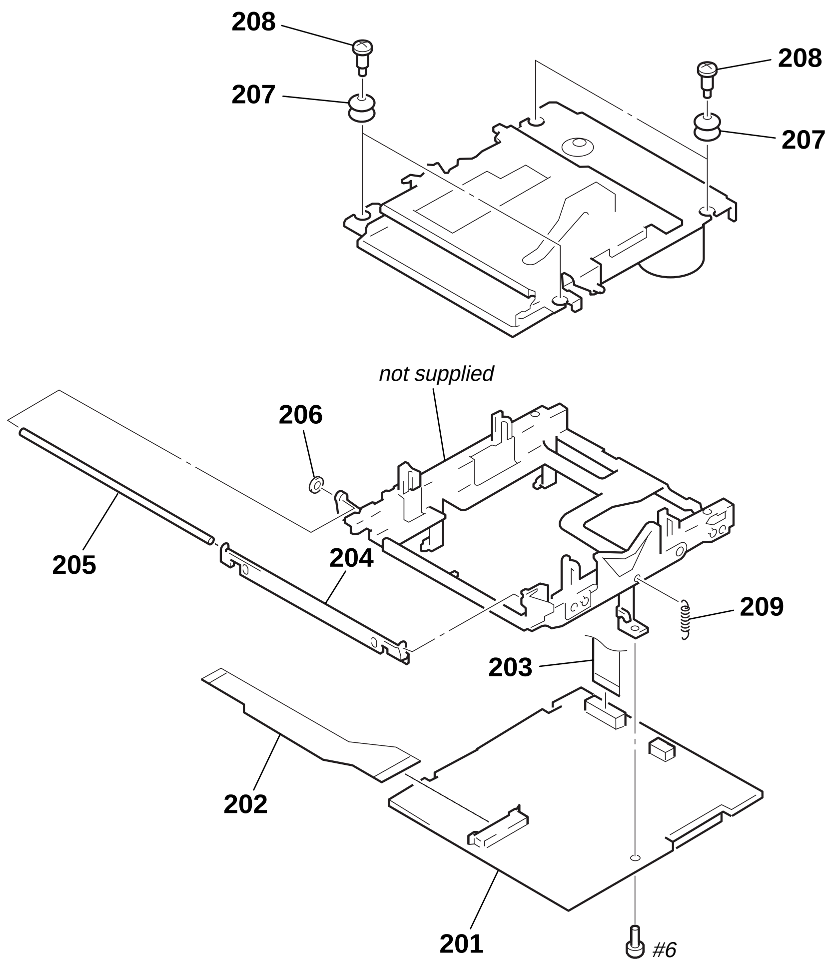
(4) CHASSIS SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

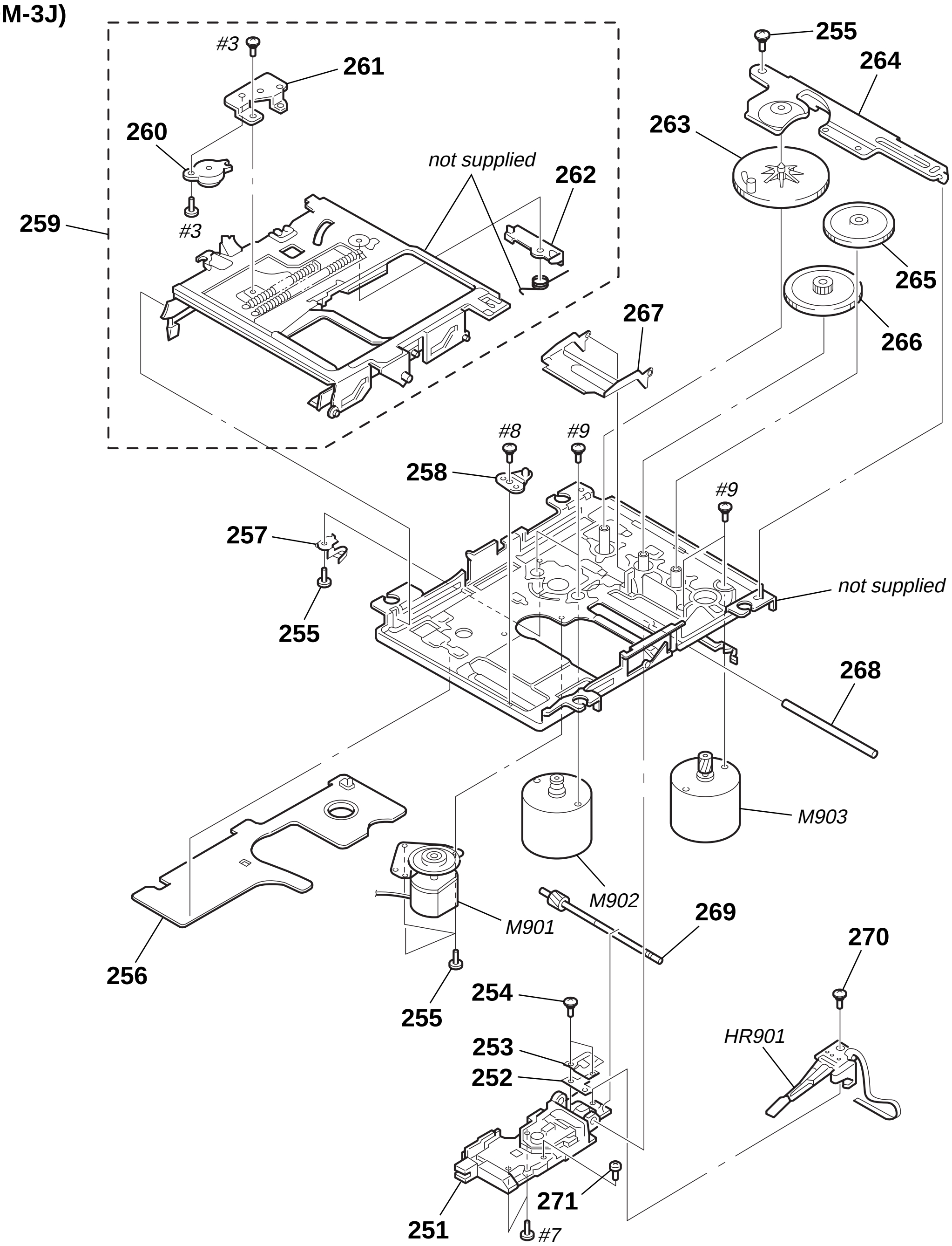
Ref. No.	Part No.	Description	Remark
* 151	A-4417-232-A	POWER BOARD, COMPLETE	
* 152	1-671-772-11	AMP BOARD	
* 153	A-4417-230-A	MAIN BOARD, COMPLETE (AEP, UK)	
* 153	A-4417-310-A	MAIN BOARD, COMPLETE (SP, HK)	
* 153	A-4417-312-A	MAIN BOARD, COMPLETE (US, CND)	
154	1-790-106-11	WIRE (FLAT TYPE) (31 CORE)	
155	1-775-170-11	WIRE (FLAT TYPE) (19 CORE)	
156	4-812-134-11	RIVET (DIA. 3.5), NYLON	
* 157	4-213-167-01	INSULATED PLATE	
* 158	1-671-425-11	JOINT BOARD	
* 159	4-212-513-01	PANEL, BACK (US, CND, AEP, UK)	
* 159	4-212-513-11	PANEL, BACK (SP, HK)	
* 160	4-212-527-01	COVER (FUSE)	
161	4-212-526-01	BRACKET (FAN)	
162	4-966-267-11	BUSHING (FBS001), CORD	
⚠163	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
⚠164	1-575-651-21	CORD, POWER (AEP, SP, HK)	
⚠164	1-696-571-11	CORD, POWER (UK)	
⚠164	1-783-531-31	CORD, POWER (US, CND)	
⚠165	1-569-008-21	ADAPTOR, CONVERSION 2P (SP)	
166	1-773-009-11	WIRE (FLAT TYPE) (15 CORE)	
167	1-693-407-21	TUNER (US, CND)	
167	1-693-409-21	TUNER (AEP, UK, SP, HK)	
168	4-965-822-01	FOOT	
169	4-212-522-01	BRACKET (BOTTOM)	
170	1-790-105-11	WIRE (FLAT TYPE) (25 CORE)	
M501	1-698-997-11	FAN, D.C.	
⚠T901	1-433-472-11	TRANSFORMER, POWER (US, CND)	
⚠T901	1-433-473-11	TRANSFORMER, POWER (AEP, UK)	
⚠T901	1-433-474-11	TRANSFORMER, POWER (SP, HK)	

(5) MD MECHANISM DECK SECTION-1 (MDM-3J)



Ref. No.	Part No.	Description	Remark
* 201	A-4699-808-A	BD (MD) BOARD, COMPLETE	
202	1-660-966-11	OP RELAY FLEXIBLE BOARD	
203	1-782-683-11	WIRE (FLAT TYPE) (14 CORE)	
204	X-4949-900-1	SHUTTER ASSY	
205	4-997-456-02	SHAFT (SHUTTER) (A)	
206	4-986-959-01	WASHER, STOPPER	
207	4-987-327-01	INSULATOR	
208	4-628-167-01	SCREW, STEP	
209	4-997-962-01	SPRING (O/C), TENSION	

(6) MD MECHANISM DECK SECTION-2 (MDM-3J)

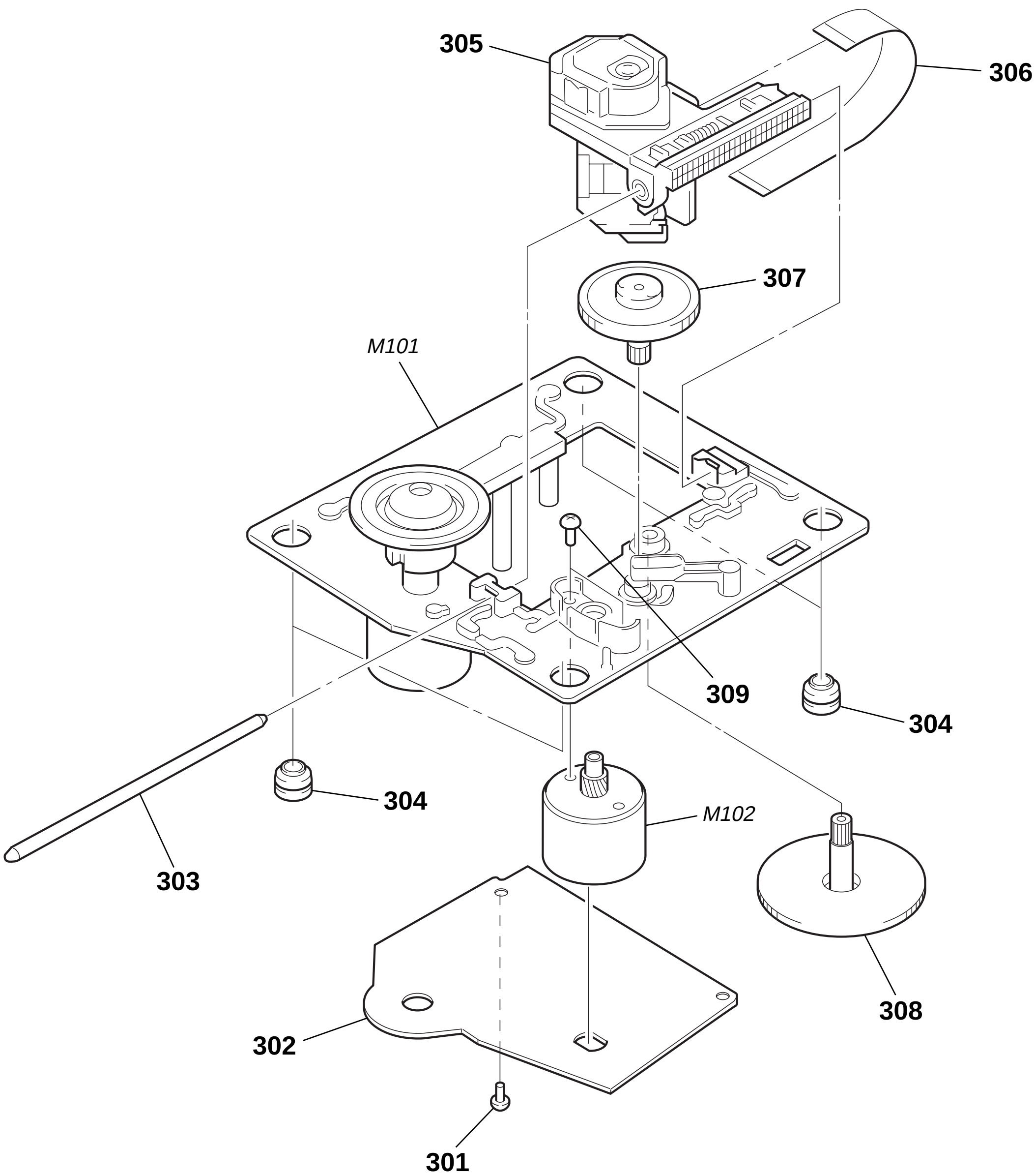


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠251	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N (for MD)	
252	4-987-061-01	SPACER (RACK)	
253	4-963-914-02	RACK (INSERTER)	
254	3-366-890-11	SCREW (M1.4)	
255	3-342-375-11	SCREW (M1.7X1.4), SPECIAL	
* 256	1-667-719-11	SW BOARD	
257	4-979-906-11	SPRING (LEAD SCREW)	
* 258	4-983-511-02	PIN (OUTSERT)	
259	A-4672-138-A	SLIDER COMPLETE ASSY	
260	3-953-235-01	DAMPER, OIL	
* 261	4-983-439-01	BRACKET (DAMPER)	
* 262	4-983-437-01	SLIDER (CAM)	
263	4-979-898-01	GEAR (LB)	

Ref. No.	Part No.	Description	Remark
264	4-979-890-11	RETAINER (GEAR)	
265	4-979-899-01	GEAR (LC)	
266	4-979-897-01	GEAR (LA)	
267	4-979-885-01	LEVER (HEAD UP)	
268	4-984-556-01	SHAFT (MAIN SHAFT)	
269	A-3304-200-A	SCREW ASSY, LEAD	
270	4-988-560-01	SCREW (+P 1.7X6)	
271	4-955-841-11	SCREW	
HR901	1-500-396-11	HEAD, OVER LIGHT (RF325-74A)	
M901	A-4672-135-A	MOTOR ASSY, SPINDLE (for MD)	
M902	A-4672-133-A	MOTOR ASSY, SLED (for MD)	
M903	A-4672-134-A	MOTOR ASSY, LOADING (for MD)	

(7) CD BASE UNIT SECTION (BU-22BD19)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
301	4-951-620-01	SCREW (2.6X8), +BVTP	
302	A-4673-402-A	BD (CD) BOARD, COMPLETE	
303	4-917-565-01	SHAFT, SLED	
304	4-951-940-01	INSULATOR (BU)	
⚠305	8-848-379-31	OPTICAL PICK-UP KSS-213B/K-N (for CD)	
306	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
307	4-917-567-01	GEAR (M)	
308	4-917-564-01	GEAR (P), FLATNESS	
309	3-713-786-51	SCREW +P 2X3	
M101	X-4942-405-1	BASE (OUTSART) ASSY (SPINDLE) (for CD)	
M102	X-4917-504-1	MOTOR ASSY (SLED) (for CD)	

SECTION 9
ELECTRICAL PARTS LIST

AMP **BD (CD)**

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  CND : Canadian
  HK : Hong Kong
  SP : Singapore
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-671-772-11	AMP BOARD			
		**********			
		< CAPACITOR >			
C534	1-126-047-91	ELECT	4.7uF	20%	50V
C535	1-126-047-91	ELECT	4.7uF	20%	50V
C536	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C537	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C539	1-126-022-11	ELECT	47uF	20%	25V
C540	1-126-022-11	ELECT	47uF	20%	25V
C541	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C542	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C543	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C546	1-126-964-11	ELECT	10uF	20%	50V
C547	1-126-964-11	ELECT	10uF	20%	50V
C556	1-130-483-00	MYLAR	0.01uF	5%	50V
C557	1-130-483-00	MYLAR	0.01uF	5%	50V
		< CONNECTOR >			
* CN505	1-564-525-11	PLUG, CONNECTOR 10P			
		< IC >			
IC506	8-759-333-24	IC LM1876TF			
		< RESISTOR >			
R520	1-216-049-11	RES, CHIP	1K	5%	1/10W
R521	1-216-081-00	METAL CHIP	22K	5%	1/10W
R522	1-216-081-00	METAL CHIP	22K	5%	1/10W
R523	1-216-049-11	RES, CHIP	1K	5%	1/10W
R526	1-216-045-00	METAL CHIP	680	5%	1/10W
R527	1-216-045-00	METAL CHIP	680	5%	1/10W
R528	1-216-081-00	METAL CHIP	22K	5%	1/10W
R529	1-216-081-00	METAL CHIP	22K	5%	1/10W
R550	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R551	1-216-069-00	METAL CHIP	6.8K	5%	1/10W

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Ref. No.	Part No.	Description			Remark
	A-4673-402-A	BD (CD) BOARD, COMPLETE			
		************************			
		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C105	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C106	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
C107	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
C108	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C109	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C121	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C122	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
C125	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C126	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C127	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C129	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C134	1-164-346-11	CERAMIC CHIP	1uF		16V
C135	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C137	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C149	1-164-346-11	CERAMIC CHIP	1uF		16V
C153	1-135-259-11	TANTALUM CHIP	10uF	20%	6.3V

BD (CD) BD (MD)

Ref. No.	Part No.	Description			Remark
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
		< CONNECTOR >			
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P			
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P			
		< IC >			
IC101	8-752-069-56	IC CXA1782BQ			
IC102	8-759-291-06	IC BA6397FP			
IC103	8-752-372-94	IC CXD2507AQ			
IC104	8-759-185-29	IC PCM1710U-B			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
Q102	8-729-424-08	TRANSISTOR UN2111			
Q103	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R102	1-216-001-00	METAL CHIP	10	5%	1/10W
R103	1-216-049-11	RES, CHIP	1K	5%	1/10W
R104	1-216-097-00	RES, CHIP	100K	5%	1/10W
R105	1-216-093-00	METAL CHIP	68K	5%	1/10W
R106	1-216-093-00	METAL CHIP	68K	5%	1/10W
R107	1-216-093-00	METAL CHIP	68K	5%	1/10W
R108	1-216-093-00	METAL CHIP	68K	5%	1/10W
R109	1-216-097-00	RES, CHIP	100K	5%	1/10W
R112	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-083-00	METAL CHIP	27K	5%	1/10W
R114	1-216-101-00	METAL CHIP	150K	5%	1/10W
R115	1-216-101-00	METAL CHIP	150K	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R118	1-216-049-11	RES, CHIP	1K	5%	1/10W
R119	1-216-089-00	RES, CHIP	47K	5%	1/10W
R120	1-216-089-00	RES, CHIP	47K	5%	1/10W
R121	1-216-114-00	RES, CHIP	510K	5%	1/10W
R122	1-216-097-00	RES, CHIP	100K	5%	1/10W
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W
R124	1-216-091-00	METAL CHIP	56K	5%	1/10W
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R126	1-216-063-00	RES, CHIP	3.9K	5%	1/10W
R127	1-216-089-00	RES, CHIP	47K	5%	1/10W
R128	1-216-105-00	RES, CHIP	220K	5%	1/10W
R129	1-216-049-11	RES, CHIP	1K	5%	1/10W
R130	1-216-079-00	METAL CHIP	18K	5%	1/10W
R131	1-216-079-00	METAL CHIP	18K	5%	1/10W
R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R133	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R134	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R135	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W
R137	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R138	1-216-049-11	RES, CHIP	1K	5%	1/10W
R139	1-216-033-00	METAL CHIP	220	5%	1/10W
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R143	1-216-121-00	RES, CHIP	1M	5%	1/10W

Ref. No.	Part No.	Description			Remark
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W
R145	1-216-097-00	RES, CHIP	100K	5%	1/10W
R146	1-216-097-00	RES, CHIP	100K	5%	1/10W
R147	1-216-049-11	RES, CHIP	1K	5%	1/10W
R148	1-216-049-11	RES, CHIP	1K	5%	1/10W
R149	1-216-049-11	RES, CHIP	1K	5%	1/10W
R150	1-216-037-00	METAL CHIP	330	5%	1/10W
R151	1-216-037-00	METAL CHIP	330	5%	1/10W
R152	1-216-037-00	METAL CHIP	330	5%	1/10W
R153	1-216-082-00	RES, CHIP	24K	5%	1/10W
R154	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R156	1-216-085-00	METAL CHIP	33K	5%	1/10W
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R158	1-216-001-00	METAL CHIP	10	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-223-587-11	RES, ADJ, CARBON 22K			
RV102	1-223-587-11	RES, ADJ, CARBON 22K			
RV103	1-223-587-11	RES, ADJ, CARBON 22K			
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
		< VIBRATOR >			
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)			

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Ref. No.	Part No.	Description			Remark
*	A-4699-808-A	BD (MD) BOARD, COMPLETE ************************			
		< CAPACITOR >			
C101	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C104	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C105	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C110	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C113	1-164-346-11	CERAMIC CHIP	1uF		16V
C115	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C118	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C119	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C122	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C127	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C128	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C132	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C152	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C153	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C156	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
C163	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C164	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C167	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C168	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C169	1-104-851-11	TANTALUM CHIP	10uF	20%	10V
C171	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C183	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C184	1-117-970-11	ELECT CHIP	22uF	20%	10V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C188	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C191	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C192	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C197	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C201	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
C202	1-164-690-91	CERAMIC CHIP	0.0022uF	5%	50V
C203	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C205	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C206	1-115-363-11	CERAMIC CHIP	10uF		10V
C207	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C208	1-115-363-11	CERAMIC CHIP	10uF		10V
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C210	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C212	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C213	1-115-363-11	CERAMIC CHIP	10uF		10V
C214	1-115-363-11	CERAMIC CHIP	10uF		10V
C216	1-124-779-00	ELECT CHIP	10uF	20%	16V
C350	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C352	1-124-779-00	ELECT CHIP	10uF	20%	16V
C353	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C354	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C355	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C357	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C358	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C359	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C361	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C362	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C363	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C401	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C402	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C2001	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C2002	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C2003	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C2004	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P			
CN104	1-778-283-11	CONNECTOR, FFC/FPC 4P			
CN106	1-774-771-11	CONNECTOR, FFC/FPC 14P			
CN107	1-779-854-11	CONNECTOR, FFC/FPC 25P			
		< DIODE >			
D101	8-719-988-62	DIODE 1SS355			
D181	8-719-046-86	DIODE F1J6TP			
D183	8-719-046-86	DIODE F1J6TP			
		< IC/TRANSISTOR >			
IC101	8-752-080-95	IC CXA2523AR			
IC103	8-729-903-10	TRANSISTOR FMW1			
IC121	8-752-384-47	IC CXD2652AR			
IC124	8-759-536-21	IC MSM51V4400D-10TSK-FS			
IC152	8-759-430-25	IC BH6511FS-E2			
IC153	8-759-481-19	IC LB1830M-S-TE-L			
IC171	8-759-484-73	IC BR24C01AF-E2			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC192	8-759-460-72	IC BA033FP-E2			
IC201	8-759-471-38	IC AK4520A-VF-E2			
IC316	8-759-568-55	IC M30610MCA-272FP			
IC401	8-759-242-70	IC TC7WU04F			
		< COIL/RESISTOR >			
L101	1-414-235-22	INDUCTOR CHIP	0uH		
L102	1-414-235-22	INDUCTOR CHIP	0uH		
L103	1-414-235-22	INDUCTOR CHIP	0uH		
L105	1-414-235-22	INDUCTOR CHIP	0uH		
L106	1-414-235-22	INDUCTOR CHIP	0uH		
L121	1-414-235-22	INDUCTOR CHIP	0uH		
L122	1-414-235-22	INDUCTOR CHIP	0uH		
L151	1-412-622-51	INDUCTOR	10uH		
L152	1-412-622-51	INDUCTOR	10uH		
L153	1-412-039-51	INDUCTOR CHIP	100uH		
L154	1-412-039-51	INDUCTOR CHIP	100uH		
L161	1-414-235-22	INDUCTOR CHIP	0uH		
L162	1-414-235-22	INDUCTOR CHIP	0uH		
L181	1-424-675-11	INDUCTOR	0uH		
L201	1-412-776-11	INDUCTOR	1uH		
L301	1-414-235-22	INDUCTOR CHIP	0uH		
L351	1-216-295-00	SHORT	0		
L401	1-216-025-00	RES, CHIP	100	5%	1/10W
L1001	1-500-445-21	FERRITE	0uH		
		< TRANSISTOR >			
Q101	8-729-028-91	TRANSISTOR DTA144EUA-T106			
Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR			

BD (MD)

Ref. No.	Part No.	Description			Remark
Q103	8-729-028-99	TRANSISTOR RT1N144M-TP-1			
Q104	8-729-028-99	TRANSISTOR RT1N144M-TP-1			
Q162	8-729-101-07	TRANSISTOR 2SB798-DL			
Q163	8-729-028-91	TRANSISTOR DTA144EUA-T106			
Q181	8-729-018-75	FET 2SJ278MY			
Q182	8-729-017-65	FET 2SK1764KY			
Q350	8-729-028-99	TRANSISTOR RT1N144M-TP-1			
		< RESISTOR >			
R101	1-216-025-00	RES, CHIP	100	5%	1/10W
R103	1-216-049-11	RES, CHIP	1K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R112	1-216-089-00	RES, CHIP	47K	5%	1/10W
R113	1-216-049-11	RES, CHIP	1K	5%	1/10W
R115	1-216-049-11	RES, CHIP	1K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R121	1-216-097-00	RES, CHIP	100K	5%	1/10W
R125	1-216-025-00	RES, CHIP	100	5%	1/10W
R128	1-216-041-00	METAL CHIP	470	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-097-00	RES, CHIP	100K	5%	1/10W
R133	1-216-117-00	METAL CHIP	680K	5%	1/10W
R134	1-216-049-11	RES, CHIP	1K	5%	1/10W
R135	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R136	1-216-049-11	RES, CHIP	1K	5%	1/10W
R137	1-216-025-00	RES, CHIP	100	5%	1/10W
R140	1-216-029-00	METAL CHIP	150	5%	1/10W
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-025-00	RES, CHIP	100	5%	1/10W
R146	1-216-037-00	METAL CHIP	330	5%	1/10W
R147	1-216-025-00	RES, CHIP	100	5%	1/10W
R148	1-216-045-00	METAL CHIP	680	5%	1/10W
R158	1-216-097-00	RES, CHIP	100K	5%	1/10W
R159	1-216-097-00	RES, CHIP	100K	5%	1/10W
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-033-00	METAL CHIP	220	5%	1/10W
R165	1-216-097-00	RES, CHIP	100K	5%	1/10W
R166	1-220-149-11	REGISTER	2.2	10%	1/2W
R167	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R175	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R177	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R178	1-216-295-00	SHORT	0		
R179	1-216-091-00	METAL CHIP	56K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-00	RES, CHIP	47K	5%	1/10W
R183	1-216-089-00	RES, CHIP	47K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-295-00	SHORT	0		
R196	1-216-295-00	SHORT	0		
R197	1-216-295-00	SHORT	0		
R198	1-216-295-00	SHORT	0		
R199	1-216-295-00	SHORT	0		
R200	1-216-295-00	SHORT	0		
R202	1-216-041-00	METAL CHIP	470	5%	1/10W
R203	1-216-025-00	RES, CHIP	100	5%	1/10W
R204	1-216-025-00	RES, CHIP	100	5%	1/10W
R210	1-216-041-00	METAL CHIP	470	5%	1/10W
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R331	1-216-073-00	METAL CHIP	10K	5%	1/10W
R332	1-216-097-00	RES, CHIP	100K	5%	1/10W
R333	1-216-073-00	METAL CHIP	10K	5%	1/10W
R351	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R352	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R356	1-216-025-00	RES, CHIP	100	5%	1/10W
R361	1-216-073-00	METAL CHIP	10K	5%	1/10W
R362	1-216-025-00	RES, CHIP	100	5%	1/10W
R363	1-216-073-00	METAL CHIP	10K	5%	1/10W
R366	1-216-097-00	RES, CHIP	100K	5%	1/10W
R367	1-216-097-00	RES, CHIP	100K	5%	1/10W
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W
R380	1-216-073-00	METAL CHIP	10K	5%	1/10W
R381	1-216-073-00	METAL CHIP	10K	5%	1/10W
R382	1-216-073-00	METAL CHIP	10K	5%	1/10W
R383	1-216-073-00	METAL CHIP	10K	5%	1/10W
R384	1-216-073-00	METAL CHIP	10K	5%	1/10W
R386	1-216-073-00	METAL CHIP	10K	5%	1/10W
R387	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R388	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R389	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R391	1-216-073-00	METAL CHIP	10K	5%	1/10W
R393	1-216-073-00	METAL CHIP	10K	5%	1/10W
R400	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-089-00	RES, CHIP	47K	5%	1/10W
R402	1-216-113-00	METAL CHIP	470K	5%	1/10W
R405	1-216-063-00	RES, CHIP	3.9K	5%	1/10W
R420	1-216-097-00	RES, CHIP	100K	5%	1/10W
R421	1-216-097-00	RES, CHIP	100K	5%	1/10W
R422	1-216-097-00	RES, CHIP	100K	5%	1/10W
R423	1-216-097-00	RES, CHIP	100K	5%	1/10W
R424	1-216-097-00	RES, CHIP	100K	5%	1/10W
R425	1-216-097-00	RES, CHIP	100K	5%	1/10W
R429	1-216-097-00	RES, CHIP	100K	5%	1/10W
R430	1-216-097-00	RES, CHIP	100K	5%	1/10W
R431	1-216-097-00	RES, CHIP	100K	5%	1/10W
R432	1-216-097-00	RES, CHIP	100K	5%	1/10W
R433	1-216-097-00	RES, CHIP	100K	5%	1/10W
R434	1-216-097-00	RES, CHIP	100K	5%	1/10W
R435	1-216-097-00	RES, CHIP	100K	5%	1/10W
R438	1-216-097-00	RES, CHIP	100K	5%	1/10W
R439	1-216-097-00	RES, CHIP	100K	5%	1/10W
R440	1-216-097-00	RES, CHIP	100K	5%	1/10W
R441	1-216-097-00	RES, CHIP	100K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R442	1-216-097-00	RES, CHIP	100K	5%	1/10W
R443	1-216-097-00	RES, CHIP	100K	5%	1/10W
R444	1-216-097-00	RES, CHIP	100K	5%	1/10W
R445	1-216-097-00	RES, CHIP	100K	5%	1/10W
R448	1-216-097-00	RES, CHIP	100K	5%	1/10W
R449	1-216-097-00	RES, CHIP	100K	5%	1/10W
R451	1-216-097-00	RES, CHIP	100K	5%	1/10W
R454	1-216-097-00	RES, CHIP	100K	5%	1/10W
R455	1-216-097-00	RES, CHIP	100K	5%	1/10W
R456	1-216-097-00	RES, CHIP	100K	5%	1/10W
R457	1-216-097-00	RES, CHIP	100K	5%	1/10W
R458	1-216-097-00	RES, CHIP	100K	5%	1/10W
R460	1-216-073-00	METAL CHIP	10K	5%	1/10W
R462	1-216-073-00	METAL CHIP	10K	5%	1/10W
R502	1-216-295-00	SHORT	0		
R504	1-216-295-00	SHORT	0		
R600	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R602	1-216-025-00	RES, CHIP	100	5%	1/10W
R603	1-216-025-00	RES, CHIP	100	5%	1/10W
R604	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R605	1-216-025-00	RES, CHIP	100	5%	1/10W
R606	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R607	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R608	1-216-025-00	RES, CHIP	100	5%	1/10W
R2001	1-216-001-00	METAL CHIP	10	5%	1/10W
R2002	1-216-296-00	SHORT	0		
		< VIBRATOR >			
X101	1-767-286-11	VIBRATOR, CRYSTAL (22.5792MHz)			
X302	1-767-670-11	VIBRATOR, CERAMIC (7MHz)			

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Ref. No.	Part No.	Description			Remark
*	1-671-426-11	EJECT BOARD ***********			
		< CONNECTOR >			
* CN902	1-568-942-11	PIN, CONNECTOR 4P			
		< SWITCH >			
S907	1-762-875-21	SWITCH, KEYBOARD (⏏ (CD))			
S916	1-570-953-11	SWITCH, PUSH			(CD LID OPEN/CLOSE DETECT)

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Ref. No.	Part No.	Description			Remark
*	1-671-424-11	HP BOARD *********			
		< CAPACITOR >			
C107	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C108	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C109	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C932	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
		< CONNECTOR >			
CN903	1-506-468-11	PIN, CONNECTOR 3P			
		< DIODE >			
D906	8-719-069-45	LED SELU5E23C-TP15			(MD DISC SLOT INDICATOR)
		< JACK >			
J101	1-691-293-51	JACK (PHONES)			
		< RESISTOR >			
R104	1-202-997-11	RES, CHIP	270	5%	1/2W
R105	1-202-997-11	RES, CHIP	270	5%	1/2W
R935	1-216-025-00	RES, CHIP	100	5%	1/10W
		< SWITCH >			
S906	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)			

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Ref. No.	Part No.	Description			Remark
*	1-671-425-11	JOINT BOARD ***********			
	1-533-293-11	FUSE HOLDER			
		< CAPACITOR >			
C101	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V (AEP, UK)
C102	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V (AEP, UK)
C103	1-164-222-11	CERAMIC CHIP	0.22uF		25V (AEP, UK)
C104	1-164-222-11	CERAMIC CHIP	0.22uF		25V (AEP, UK)
C105	1-164-222-11	CERAMIC CHIP	0.22uF		25V (AEP, UK)
C106	1-164-222-11	CERAMIC CHIP	0.22uF		25V (AEP, UK)
		< CONNECTOR >			
CN101	1-564-321-00	PIN, CONNECTOR 2P (US, CND, AEP, UK)			
* CN101	1-564-687-11	PIN, CONNECTOR 3P (SP, HK)			
CN102	1-784-038-21	CONNECTOR, BOARD TO BOARD 9P			
CN103	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN104	1-564-520-11	PLUG, CONNECTOR 5P			
		< DIODE >			
D522	8-719-988-62	DIODE 1SS355			
D523	8-719-988-62	DIODE 1SS355			
		< FUSE >			
⚠F101	1-532-388-51	FUSE (T2AL/250V) (SP, HK)			
⚠F101	1-532-463-51	FUSE (T1AL/250V) (AEP, UK)			
⚠F101	1-576-104-11	FUSE (2A/250V) (US, CND)			
		< RESISTOR >			
⚠R101	1-202-725-00	SOLID	3.3M	10%	1/2W (US, CND)
R102	1-218-232-91	RES, CHIP	4.7	10%	1/2W (AEP, UK)
R103	1-218-232-91	RES, CHIP	4.7	10%	1/2W (AEP, UK)
R544	1-216-077-00	METAL CHIP	15K	5%	1/10W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le neméro spécifié.

JOINT **MAIN**

Ref. No.	Part No.	Description			Remark
R547	1-216-077-00	METAL CHIP	15K	5%	1/10W
		< SWITCH >			
⚠S101	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (SP, HK)			
		< TERMINAL >			
TM101	1-694-471-11	TERMINAL BOARD (SPEAKER)			

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Ref. No.	Part No.	Description			Remark
*	A-4417-230-A	MAIN BOARD, COMPLETE (AEP, UK)			
*	A-4417-310-A	MAIN BOARD, COMPLETE (SP, HK)			
*	A-4417-312-A	MAIN BOARD, COMPLETE (US, CND)			
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		< CAPACITOR >			
C702	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C703	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C704	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C705	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C709	1-126-925-11	ELECT	470uF	20%	10V
C710	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C711	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C712	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C713	1-104-664-11	ELECT	47uF	20%	16V
C714	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C715	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C716	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C717	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C718	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C719	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C720	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C721	1-126-964-11	ELECT	10uF	20%	50V
C722	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C723	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C724	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C726	1-104-664-11	ELECT	47uF	20%	16V
C727	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C728	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C729	1-126-916-11	ELECT	1000uF	20%	6.3V
C731	1-104-664-11	ELECT	47uF	20%	16V
C732	1-126-964-11	ELECT	10uF	20%	50V
C733	1-126-964-11	ELECT	10uF	20%	50V
C734	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C735	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C736	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C737	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C738	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C739	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C740	1-126-047-91	ELECT	4.7uF	20%	50V
C741	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C742	1-126-047-91	ELECT	4.7uF	20%	50V
C743	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C744	1-104-664-11	ELECT	47uF	20%	16V
C746	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C748	1-130-475-00	MYLAR	0.0022uF	5%	50V
C749	1-130-475-00	MYLAR	0.0022uF	5%	50V
C750	1-104-664-11	ELECT	47uF	20%	16V

Ref. No.	Part No.	Description			Remark
C751	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C752	1-104-664-11	ELECT	47uF	20%	16V
C753	1-130-477-00	MYLAR	0.0033uF	5%	50V
C754	1-104-664-11	ELECT	47uF	20%	16V
C755	1-126-047-91	ELECT	4.7uF	20%	50V
C756	1-126-047-91	ELECT	4.7uF	20%	50V
C757	1-126-047-91	ELECT	4.7uF	20%	50V
C758	1-126-047-91	ELECT	4.7uF	20%	50V
C759	1-126-047-91	ELECT	4.7uF	20%	50V
C760	1-126-047-91	ELECT	4.7uF	20%	50V
C761	1-126-047-91	ELECT	4.7uF	20%	50V
C762	1-126-047-91	ELECT	4.7uF	20%	50V
C763	1-136-165-00	FILM	0.1uF	5%	50V
C764	1-136-165-00	FILM	0.1uF	5%	50V
C766	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C768	1-126-960-11	ELECT	1uF	20%	50V
C769	1-126-957-11	ELECT	0.22uF	20%	50V
C770	1-126-957-11	ELECT	0.22uF	20%	50V
C772	1-130-473-00	MYLAR	0.0015uF	5%	50V
C773	1-130-473-00	MYLAR	0.0015uF	5%	50V
C774	1-117-749-11	FILM CHIP	0.1uF	20%	50V
C775	1-117-749-11	FILM CHIP	0.1uF	20%	50V
C776	1-117-749-11	FILM CHIP	0.1uF	20%	50V
C777	1-117-749-11	FILM CHIP	0.1uF	20%	50V
C779	1-126-964-11	ELECT	10uF	20%	50V
C780	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C781	1-104-664-11	ELECT	47uF	20%	16V
C782	1-104-664-11	ELECT	47uF	20%	16V
C783	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C784	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C785	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C787	1-104-664-11	ELECT	47uF	20%	16V
C788	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C789	1-126-059-11	ELECT	10uF	20%	50V
C790	1-126-059-11	ELECT	10uF	20%	50V
C791	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C792	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C793	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C794	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C795	1-104-664-11	ELECT	47uF	20%	16V (AEP, UK)
C796	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (AEP, UK)
C797	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C799	1-163-139-00	CERAMIC CHIP	820PF	5%	50V (AEP, UK)
C800	1-104-664-11	ELECT	47uF	20%	16V
C801	1-163-003-11	CERAMIC CHIP	330PF	10%	50V (AEP, UK)
C802	1-163-011-11	CERAMIC CHIP	1500PF	10%	50V (AEP, UK)
C803	1-126-964-11	ELECT	10uF	20%	50V (AEP, UK)
C804	1-163-017-00	CERAMIC CHIP	4700PF	10%	50V (AEP, UK)
C805	1-126-961-11	ELECT	2.2uF	20%	50V (AEP, UK)
C806	1-163-239-11	CERAMIC CHIP	33PF	5%	50V (AEP, UK)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
C807	1-163-239-11	CERAMIC CHIP 33PF 5%	50V (AEP, UK)
C808	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V (AEP, UK)
C809	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V (AEP, UK)
C810	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V (AEP, UK)
C811	1-126-964-11	ELECT 10uF 20%	50V (AEP, UK)
C812	1-126-059-11	ELECT 10uF 20%	50V
C813	1-126-059-11	ELECT 10uF 20%	50V
C814	1-126-047-91	ELECT 4.7uF 20%	50V
C815	1-126-047-91	ELECT 4.7uF 20%	50V
C816	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V
		< CONNECTOR >	
CN701	1-770-167-11	CONNECTOR, FFC/FPC 19P	
* CN702	1-568-941-11	PIN, CONNECTOR 3P	
CN703	1-784-776-11	CONNECTOR, FFC 15P	
CN704	1-779-636-11	CONNECTOR, FFC/FPC 25P	
CN705	1-779-967-12	SOCKET, CONNECTOR (PC BOARD) 24P	
CN706	1-779-568-11	CONNECTOR, FFC (LIF(NON-ZIF)) 31P	
CN707	1-506-481-11	PIN, CONNECTOR 2P	
		< DIODE >	
D701	8-719-988-62	DIODE 1SS355	
D702	8-719-988-62	DIODE 1SS355	
D703	8-719-977-03	DIODE DTZ5.6B	
D704	8-719-422-31	DIODE MA8047-M	
D705	8-719-988-62	DIODE 1SS355	
D707	8-719-988-62	DIODE 1SS355	
D708	8-719-988-62	DIODE 1SS355	
D709	8-719-210-33	DIODE EC10DS2	
D710	8-719-988-62	DIODE 1SS355	
D711	8-719-988-62	DIODE 1SS355 (AEP, UK)	
D712	8-719-988-62	DIODE 1SS355 (AEP, UK)	
D713	8-719-210-33	DIODE EC10DS2	
D714	8-719-210-33	DIODE EC10DS2	
D715	8-719-210-33	DIODE EC10DS2 (AEP, UK)	
D716	8-719-210-33	DIODE EC10DS2	
D717	8-719-210-33	DIODE EC10DS2	
D718	8-719-210-39	DIODE EC10QS-04	
D719	8-719-210-39	DIODE EC10QS-04	
D720	8-719-422-49	DIODE MA8056-L	
D721	8-719-210-33	DIODE EC10DS2	
		< FERRITE BEAD >	
FB702	1-500-445-21	FERRITE 0uH	
FB704	1-500-445-21	FERRITE 0uH	
FB705	1-500-445-21	FERRITE 0uH	
FB706	1-500-445-21	FERRITE 0uH	
FB707	1-500-445-21	FERRITE 0uH	
FB708	1-500-445-21	FERRITE 0uH (AEP, UK)	
FB709	1-500-445-21	FERRITE 0uH	
		< IC >	
IC702	8-759-822-09	IC LB1641	

Ref. No.	Part No.	Description	Remark
IC704	8-759-269-09	IC SN74HCT04ANS	
IC705	8-759-494-40	IC M62428AFP600C	
IC706	8-759-481-02	IC M62016L	
IC707	8-759-545-08	IC uPD78078GF-083-3BA	
IC708	8-759-635-63	IC M51943BSL	
IC710	8-759-450-88	IC BU1922-E2 (AEP, UK)	
		< JACK >	
J501	1-764-593-21	JACK 2P (TAPE, OUT)	
J502	1-764-593-21	JACK 2P (TAPE, IN)	
		< SHORT >	
JW702	1-216-296-00	SHORT 0	
JW703	1-216-295-00	SHORT 0	
JW704	1-216-295-00	SHORT 0 (US, CND, SP, HK)	
JW705	1-216-295-00	SHORT 0 (US, CND)	
JW707	1-216-296-00	SHORT 0	
		< COIL >	
L701	1-412-029-11	INDUCTOR CHIP 10uH	
L702	1-412-028-11	INDUCTOR CHIP 4.7uH	
L703	1-412-032-11	INDUCTOR CHIP 100uH	
L704	1-412-032-11	INDUCTOR CHIP 100uH	
L705	1-412-032-11	INDUCTOR CHIP 100uH	
L706	1-412-028-11	INDUCTOR CHIP 4.7uH	
L707	1-412-029-11	INDUCTOR CHIP 10uH	
L708	1-412-032-11	INDUCTOR CHIP 100uH (AEP, UK)	
		< TRANSISTOR >	
Q701	8-729-202-38	TRANSISTOR 2SC3326N	
Q702	8-729-202-38	TRANSISTOR 2SC3326N	
Q703	8-729-202-38	TRANSISTOR 2SC3326N	
Q704	8-729-202-38	TRANSISTOR 2SC3326N	
Q705	8-729-424-08	TRANSISTOR UN2111	
Q706	8-729-424-08	TRANSISTOR UN2111	
Q707	8-729-421-22	TRANSISTOR UN2211	
Q708	8-729-202-38	TRANSISTOR 2SC3326N	
Q709	8-729-202-38	TRANSISTOR 2SC3326N	
Q710	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q711	8-729-421-22	TRANSISTOR UN2211	
Q712	8-729-421-22	TRANSISTOR UN2211	
Q713	8-729-120-28	TRANSISTOR 2SC1623-L5L6 (AEP, UK)	
		< RESISTOR >	
R701	1-216-049-11	RES, CHIP 1K 5%	1/10W
R702	1-216-049-11	RES, CHIP 1K 5%	1/10W
R703	1-216-097-00	RES, CHIP 100K 5%	1/10W
R704	1-216-097-00	RES, CHIP 100K 5%	1/10W
R705	1-216-097-00	RES, CHIP 100K 5%	1/10W
R706	1-216-097-00	RES, CHIP 100K 5%	1/10W
R707	1-216-073-00	METAL CHIP 10K 5%	1/10W
R708	1-216-073-00	METAL CHIP 10K 5%	1/10W
R709	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R710	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R711	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R712	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R713	1-216-037-00	METAL CHIP 330 5%	1/10W
R714	1-216-077-00	METAL CHIP 15K 5%	1/10W

MAIN

Ref. No.	Part No.	Description			Remark
R715	1-216-077-00	METAL CHIP	15K	5%	1/10W
R716	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R717	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R718	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R719	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R720	1-216-073-00	METAL CHIP	10K	5%	1/10W
R721	1-216-073-00	METAL CHIP	10K	5%	1/10W
R722	1-216-097-00	RES, CHIP	100K	5%	1/10W
R723	1-216-097-00	RES, CHIP	100K	5%	1/10W
R724	1-216-049-11	RES, CHIP	1K	5%	1/10W
R725	1-216-049-11	RES, CHIP	1K	5%	1/10W
R726	1-216-025-00	RES, CHIP	100	5%	1/10W
R727	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R728	1-216-097-00	RES, CHIP	100K	5%	1/10W
R729	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R730	1-216-097-00	RES, CHIP	100K	5%	1/10W
R731	1-216-121-00	RES, CHIP	1M	5%	1/10W
R732	1-216-121-00	RES, CHIP	1M	5%	1/10W
R733	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R734	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R735	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R736	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R737	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R738	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R739	1-216-085-00	METAL CHIP	33K	5%	1/10W
R740	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R741	1-216-073-00	METAL CHIP	10K	5%	1/10W
R742	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R743	1-216-081-00	METAL CHIP	22K	5%	1/10W
R744	1-216-081-00	METAL CHIP	22K	5%	1/10W
R745	1-216-121-00	RES, CHIP	1M	5%	1/10W
R746	1-216-101-00	METAL CHIP	150K	5%	1/10W
R747	1-216-101-00	METAL CHIP	150K	5%	1/10W
R748	1-216-121-00	RES, CHIP	1M	5%	1/10W
R749	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R750	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R751	1-216-025-00	RES, CHIP	100	5%	1/10W
R752	1-216-025-00	RES, CHIP	100	5%	1/10W
R753	1-216-073-00	METAL CHIP	10K	5%	1/10W
R754	1-216-025-00	RES, CHIP	100	5%	1/10W
R755	1-216-049-11	RES, CHIP	1K	5%	1/10W
R756	1-216-025-00	RES, CHIP	100	5%	1/10W
R757	1-216-025-00	RES, CHIP	100	5%	1/10W
R758	1-216-025-00	RES, CHIP	100	5%	1/10W
R759	1-216-073-00	METAL CHIP	10K	5%	1/10W
R760	1-216-041-00	METAL CHIP	470	5%	1/10W
R761	1-216-073-00	METAL CHIP	10K	5%	1/10W
R762	1-216-041-00	METAL CHIP	470	5%	1/10W
R763	1-216-025-00	RES, CHIP	100	5%	1/10W
R764	1-216-025-00	RES, CHIP	100	5%	1/10W
R765	1-216-025-00	RES, CHIP	100	5%	1/10W
R766	1-216-025-00	RES, CHIP	100	5%	1/10W
R767	1-216-041-00	METAL CHIP	470	5%	1/10W
R768	1-216-073-00	METAL CHIP	10K	5%	1/10W
R769	1-216-025-00	RES, CHIP	100	5%	1/10W
R770	1-216-025-00	RES, CHIP	100	5%	1/10W
R771	1-216-025-00	RES, CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R772	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R773	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R774	1-216-041-00	METAL CHIP	470	5%	1/10W
R775	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R776	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R777	1-216-041-00	METAL CHIP	470	5%	1/10W
R778	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R779	1-216-025-00	RES, CHIP	100	5%	1/10W
R780	1-216-025-00	RES, CHIP	100	5%	1/10W
R781	1-216-025-00	RES, CHIP	100	5%	1/10W
R785	1-216-049-11	RES, CHIP	1K	5%	1/10W
R786	1-216-049-11	RES, CHIP	1K	5%	1/10W
R787	1-216-109-00	METAL CHIP	330K	5%	1/10W
R788	1-216-049-11	RES, CHIP	1K	5%	1/10W
R789	1-216-049-11	RES, CHIP	1K	5%	1/10W
R790	1-216-049-11	RES, CHIP	1K	5%	1/10W
R791	1-216-049-11	RES, CHIP	1K	5%	1/10W
R792	1-216-073-00	METAL CHIP	10K	5%	1/10W
R793	1-216-081-00	METAL CHIP	22K	5%	1/10W
R794	1-216-113-00	METAL CHIP	470K	5%	1/10W
R795	1-216-113-00	METAL CHIP	470K	5%	1/10W
R796	1-216-089-00	RES, CHIP	47K	5%	1/10W
R797	1-216-089-00	RES, CHIP	47K	5%	1/10W
R798	1-216-025-00	RES, CHIP	100	5%	1/10W (AEP, UK)
R799	1-216-073-00	METAL CHIP	10K	5%	1/10W
R800	1-216-025-00	RES, CHIP	100	5%	1/10W
R801	1-216-025-00	RES, CHIP	100	5%	1/10W
R802	1-216-025-00	RES, CHIP	100	5%	1/10W
R803	1-216-025-00	RES, CHIP	100	5%	1/10W
R804	1-216-025-00	RES, CHIP	100	5%	1/10W
R805	1-216-025-00	RES, CHIP	100	5%	1/10W
R806	1-216-025-00	RES, CHIP	100	5%	1/10W
R807	1-216-025-00	RES, CHIP	100	5%	1/10W
R808	1-216-025-00	RES, CHIP	100	5%	1/10W
R809	1-216-025-00	RES, CHIP	100	5%	1/10W
R810	1-216-025-00	RES, CHIP	100	5%	1/10W
R811	1-216-025-00	RES, CHIP	100	5%	1/10W
R813	1-216-073-00	METAL CHIP	10K	5%	1/10W
R814	1-216-047-00	RES, CHIP	820	5%	1/10W (AEP, UK)
R815	1-216-056-00	RES, CHIP	2K	5%	1/10W (AEP, UK)
R816	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R817	1-216-073-00	METAL CHIP	10K	5%	1/10W
R818	1-216-093-00	METAL CHIP	68K	5%	1/10W (AEP, UK)
R819	1-216-100-00	RES, CHIP	130K	5%	1/10W (AEP, UK)
R820	1-216-041-00	METAL CHIP	470	5%	1/10W
R821	1-216-073-00	RES, CHIP	10K	5%	1/10W (AEP, UK)
R822	1-216-073-00	RES, CHIP	10K	5%	1/10W (AEP, UK)
R823	1-216-049-11	RES, CHIP	1K	5%	1/10W (AEP, UK)
R824	1-218-282-11	RES, CHIP	22	5%	1/2W (AEP, UK)
R825	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R826	1-216-049-11	RES, CHIP	1K	5%	1/10W
R827	1-216-073-00	METAL CHIP	10K	5%	1/10W
R828	1-216-081-00	METAL CHIP	22K	5%	1/10W
R829	1-216-049-11	RES, CHIP	1K	5%	1/10W
R830	1-216-041-00	METAL CHIP	470	5%	1/10W
R831	1-216-121-00	METAL CHIP	1M	5%	1/10W
		< VIBRATOR >			
X701	1-567-098-41	VIBRATOR, CRYSTAL (32.768kHz)			
X702	1-760-489-11	VIBRATOR, CERAMIC (5MHz)			
X703	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz) (AEP, UK)			

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Ref. No.	Part No.	Description			Remark
*	1-671-428-11	MOTOR BOARD			
		*************			
		< CAPACITOR >			
C110	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V

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Ref. No.	Part No.	Description			Remark
*	A-4417-231-A	PANEL BOARD, COMPLETE			
		**********************			
*	4-993-866-01	HOLDER (FL)			
		< CAPACITOR >			
C901	1-126-160-11	ELECT	1uF	20%	50V
C902	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C903	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C904	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C905	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C906	1-124-261-00	ELECT	10uF	20%	50V
C907	1-124-234-00	ELECT	22uF	20%	16V
C908	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C909	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C910	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C911	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C912	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C913	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C914	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C915	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C916	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C917	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C918	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C919	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C920	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C921	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C922	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C923	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C924	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C925	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C926	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C927	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C928	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C929	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C930	1-126-160-11	ELECT	1uF	20%	50V
C931	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C933	1-124-589-11	ELECT	47uF	20%	16V
C934	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN901	1-779-969-11	PLUG, CONNECTOR (PC BOARD) 24P			
		< DIODE >			
D901	8-719-977-03	DIODE DTZ5.6B			
D902	8-719-069-45	LED SELU5E23C-TP15 (FOR ILLUMINATION)			
D903	8-719-057-29	LED SML78423C-TP15 (MD, ▶II)			
D905	8-719-058-04	LED SEL5223S-TP15 (REC)			
D907	8-719-057-29	LED SML78423C-TP15 (CD, ▶II)			
		< FLUORESCENT INDICATOR TUBE >			
FL901	1-517-687-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC901	8-759-297-23	IC M66004M8FP			
IC902	8-759-459-83	IC NJL55H400A			
		< COIL >			
L901	1-412-029-11	INDUCTOR CHIP 10uH			
L902	1-412-029-11	INDUCTOR CHIP 10uH			
		< TRANSISTOR >			
Q901	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q902	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q903	8-729-424-08	TRANSISTOR UN2111			
Q904	8-729-424-08	TRANSISTOR UN2111			
Q905	8-729-424-08	TRANSISTOR UN2111			
Q906	8-729-424-08	TRANSISTOR UN2111			
Q907	8-729-424-08	TRANSISTOR UN2111			
Q908	8-729-424-08	TRANSISTOR UN2111			
Q909	8-729-424-08	TRANSISTOR UN2111			
		< RESISTOR >			
R901	1-216-097-00	RES, CHIP	100K	5%	1/10W
R902	1-216-097-00	RES, CHIP	100K	5%	1/10W
R903	1-216-049-11	RES, CHIP	1K	5%	1/10W
R904	1-216-049-11	RES, CHIP	1K	5%	1/10W
R905	1-216-097-00	RES, CHIP	100K	5%	1/10W
R906	1-216-085-00	METAL CHIP	33K	5%	1/10W
R907	1-216-049-11	RES, CHIP	1K	5%	1/10W
R908	1-216-049-11	RES, CHIP	1K	5%	1/10W
R909	1-216-049-11	RES, CHIP	1K	5%	1/10W
R910	1-216-049-11	RES, CHIP	1K	5%	1/10W
R913	1-216-025-00	RES, CHIP	100	5%	1/10W
R914	1-216-025-00	RES, CHIP	100	5%	1/10W
R915	1-216-025-00	RES, CHIP	100	5%	1/10W
R916	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R917	1-216-033-00	METAL CHIP	220	5%	1/10W
R918	1-216-033-00	METAL CHIP	220	5%	1/10W
R919	1-216-025-00	RES, CHIP	100	5%	1/10W
R920	1-216-025-00	RES, CHIP	100	5%	1/10W
R922	1-216-025-00	RES, CHIP	100	5%	1/10W
R924	1-216-025-00	RES, CHIP	100	5%	1/10W
R925	1-216-029-00	METAL CHIP	150	5%	1/10W
R926	1-216-041-00	METAL CHIP	470	5%	1/10W
R927	1-216-041-00	METAL CHIP	470	5%	1/10W
R928	1-216-045-00	METAL CHIP	680	5%	1/10W

PANEL **POWER**

Ref. No.	Part No.	Description			Remark
R929	1-216-045-00	METAL CHIP	680	5%	1/10W
R930	1-216-037-00	METAL CHIP	330	5%	1/10W
R931	1-216-049-11	RES, CHIP	1K	5%	1/10W
R932	1-216-049-11	RES, CHIP	1K	5%	1/10W
R933	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R934	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R936	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R937	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R938	1-216-001-00	METAL CHIP	10	5%	1/10W
R939	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R940	1-216-029-00	METAL CHIP	150	5%	1/10W
R941	1-216-075-00	METAL CHIP	12K	5%	1/10W
R944	1-216-029-00	METAL CHIP	150	5%	1/10W
R945	1-216-029-00	METAL CHIP	150	5%	1/10W
		< SWITCH >			
S901	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)			
S902	1-762-875-21	SWITCH, KEYBOARD (CD, ■)			
S903	1-762-875-21	SWITCH, KEYBOARD (I/⏻)			
S904	1-762-875-21	SWITCH, KEYBOARD (CD/MD, ▶▶ ▶▶I)			
S905	1-762-875-21	SWITCH, KEYBOARD (CD, ▶II)			
S908	1-762-875-21	SWITCH, KEYBOARD (CD/MD, I◀◀ ◀◀)			
S909	1-762-875-21	SWITCH, KEYBOARD (MD, ■)			
S910	1-762-875-21	SWITCH, KEYBOARD (REC)			
S911	1-762-875-21	SWITCH, KEYBOARD (MD, ▶II)			
S912	1-762-875-21	SWITCH, KEYBOARD (CD-MD SYNC)			
S913	1-762-875-21	SWITCH, KEYBOARD (⏏ (MD))			
S914	1-762-875-21	SWITCH, KEYBOARD (VOLUME, +)			
S915	1-762-875-21	SWITCH, KEYBOARD (VOLUME, –)			

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Ref. No.	Part No.	Description			Remark
*	A-4417-232-A	POWER BOARD, COMPLETE			
		***********************			
	1-533-293-11	FUSE HOLDER			
	7-685-646-79	SCREW +BVTP	3X8 TYPE2 N-S		
		< CAPACITOR >			
C501	1-126-968-11	ELECT	100uF	20%	50V
C502	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C503	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C504	1-126-968-11	ELECT	100uF	20%	50V
C505	1-126-968-11	ELECT	100uF	20%	50V
C506	1-126-964-11	ELECT	10uF	20%	50V
C507	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C508	1-126-964-11	ELECT	10uF	20%	50V
C509	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C510	1-126-968-11	ELECT	100uF	20%	50V
C511	1-117-850-11	ELECT	15000uF	20%	16V
C512	1-126-042-11	ELECT	3300uF	20%	35V
C513	1-126-042-11	ELECT	3300uF	20%	35V
C514	1-126-964-11	ELECT	10uF	20%	50V
C515	1-126-964-11	ELECT	10uF	20%	50V
C516	1-126-960-11	ELECT	1uF	20%	50V
C517	1-126-964-11	ELECT	10uF	20%	50V
C518	1-126-964-11	ELECT	10uF	20%	50V
C519	1-126-933-11	ELECT	100uF	20%	16V
C520	1-126-952-11	ELECT	1000uF	20%	35V

Ref. No.	Part No.	Description			Remark
C522	1-126-916-11	ELECT	1000uF	20%	6.3V
C523	1-126-933-11	ELECT	100uF	20%	16V
C524	1-126-933-11	ELECT	100uF	20%	16V
C525	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C527	1-126-933-11	ELECT	100uF	20%	16V
C528	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C530	1-126-933-11	ELECT	100uF	20%	16V
C531	1-126-934-11	ELECT	220uF	20%	16V
C532	1-126-933-11	ELECT	100uF	20%	16V
C533	1-126-933-11	ELECT	100uF	20%	16V
C538	1-126-965-11	ELECT	22uF	20%	50V
C544	1-126-963-11	ELECT	4.7uF	20%	50V
C545	1-126-963-11	ELECT	4.7uF	20%	50V
C548	1-126-959-11	ELECT	0.47uF	20%	50V
C549	1-115-340-11	CERAMIC CHIP	0.22uF	10%	25V
C550	1-115-340-11	CERAMIC CHIP	0.22uF	10%	25V
C551	1-115-340-11	CERAMIC CHIP	0.22uF	10%	25V
C552	1-115-340-11	CERAMIC CHIP	0.22uF	10%	25V
C553	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C554	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C555	1-126-964-11	ELECT	10uF	20%	50V
		< CONNECTOR >			
* CN501	1-564-915-11	PIN, CONNECTOR 7P			
CN502	1-779-568-11	CONNECTOR,FFC(LIF(NON-ZIF))31P			
CN503	1-784-041-41	CONNECTOR, BOARD TO BOARD 9P			
* CN504	1-564-518-11	PLUG, CONNECTOR 3P			
		< DIODE >			
D501	8-719-988-62	DIODE 1SS355			
D502	8-719-988-62	DIODE 1SS355			
D503	8-719-210-33	DIODE EC10DS2			
D504	8-719-210-33	DIODE EC10DS2			
D505	8-719-210-33	DIODE EC10DS2			
D506	8-719-988-62	DIODE 1SS355			
D507	8-719-988-62	DIODE 1SS355			
D508	8-719-018-12	DIODE MA8330-L-TX			
D509	8-719-025-03	DIODE RBA-402-SL			
D510	8-719-210-33	DIODE EC10DS2			
D511	8-719-210-33	DIODE EC10DS2			
D512	8-719-210-33	DIODE EC10DS2			
D513	8-719-210-33	DIODE EC10DS2			
D518	8-719-420-14	DIODE MA8082-M			
D519	8-719-988-62	DIODE 1SS355			
D520	8-719-017-86	DIODE MA8140-M-TX			
D521	8-719-988-62	DIODE 1SS355			
D524	8-719-210-33	DIODE EC10DS2			
D525	8-719-210-33	DIODE EC10DS2			
D526	8-719-422-76	DIODE MA8075-M			
D527	8-719-988-62	DIODE 1SS355			
		< FUSE >			
⚠F501	1-532-504-51	FUSE (T4AL/250V) (AEP, UK, SP, HK)			
⚠F501	1-576-108-11	FUSE (4A/125V) (US, CND)			
⚠F502	1-532-504-51	FUSE (T4AL/250V) (AEP, UK, SP, HK)			
⚠F502	1-576-108-11	FUSE (4A/125V) (US, CND)			
⚠F503	1-532-464-51	FUSE (T2.5AL/250V) (AEP, UK, SP, HK)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
⚠F503	1-576-105-11	FUSE (2.5A/250V) (US, CND)			
		< GROUND TERMINAL >			
EPT501	1-537-771-21	TERMINAL BOARD, GROUND			
		< IC >			
IC501	8-759-708-05	IC NJM78L05A			
IC502	8-759-445-59	IC BA033T			
IC503	8-759-158-62	IC TA78057S			
IC504	8-759-604-86	IC M5F7807L			
IC505	8-759-231-58	IC TA7812S			
		< COIL >			
L501	1-420-872-00	COIL, AIR-CORE			
L502	1-420-872-00	COIL, AIR-CORE			
		< TRANSISTOR >			
Q503	8-729-140-97	TRANSISTOR 2SB734-34			
Q504	8-729-424-59	TRANSISTOR UN2212			
Q505	8-729-424-12	TRANSISTOR UN2112			
Q506	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q507	8-729-118-01	TRANSISTOR 2SB1116			
Q508	8-729-424-59	TRANSISTOR UN2212			
Q509	8-729-111-29	TRANSISTOR 2SD1616A-K			
Q510	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q511	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q512	8-729-424-12	TRANSISTOR UN2112			
Q514	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q516	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q518	8-729-216-22	TRANSISTOR 2SA1162-G			
Q519	8-729-021-82	TRANSISTOR 2SD2396K			
Q520	8-729-424-59	TRANSISTOR UN2212			
		< RESISTOR >			
R458	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
⚠R504	1-249-394-11	CARBON	12	5%	1/4W F
R505	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R506	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R507	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R508	1-216-081-00	RES, CHIP	22K	5%	1/10W
R509	1-216-097-00	RES, CHIP	100K	5%	1/10W
R510	1-216-073-00	METAL CHIP	10K	5%	1/10W
R511	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R512	1-216-033-00	METAL CHIP	220	5%	1/10W
R513	1-216-047-00	RES, CHIP	820	5%	1/10W
⚠R514	1-249-397-11	CARBON	22	5%	1/4W F
R515	1-216-049-11	RES, CHIP	1K	5%	1/10W
R516	1-216-091-00	METAL CHIP	56K	5%	1/10W
R517	1-216-049-11	RES, CHIP	1K	5%	1/10W
R518	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R519	1-216-081-00	METAL CHIP	22K	5%	1/10W
R524	1-216-081-00	METAL CHIP	22K	5%	1/10W
R525	1-216-073-00	METAL CHIP	10K	5%	1/10W
R530	1-216-073-00	METAL CHIP	10K	5%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R532	1-216-093-00	RES, CHIP	68K	5%	1/10W
R534	1-216-097-00	RES, CHIP	100K	5%	1/10W
R535	1-216-065-00	RES, CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description			Remark
⚠R536	1-249-387-11	CARBON	3.3	5%	1/4W F
R537	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R538	1-216-091-00	METAL CHIP	56K	5%	1/10W
R539	1-216-089-00	RES, CHIP	47K	5%	1/10W
R540	1-216-077-00	METAL CHIP	15K	5%	1/10W
R541	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R542	1-216-121-00	RES, CHIP	1M	5%	1/10W
R543	1-216-077-00	METAL CHIP	15K	5%	1/10W
R545	1-218-232-91	RES, CHIP	4.7	10%	1/2W
R546	1-218-232-91	RES, CHIP	4.7	10%	1/2W
R548	1-220-250-11	RES, CHIP	10	5%	1/2W
R549	1-220-250-11	RES, CHIP	10	5%	1/2W
		< RELAY >			
RY501	1-515-833-11	RELAY			

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*	1-671-427-11	SENSOR BOARD *************	
		< SWITCH >	
S104	1-571-300-21	SWITCH, ROTARY (DISC DETECT)	

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*	1-667-719-11	SW BOARD *********	
		< CONNECTOR >	
CN601	1-770-697-11	CONNECTOR, FFC/FPC 14P	
CN602	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P	
CN603	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P	
		< SWITCH >	
S681	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT IN)	
S682	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)	
S683	1-692-847-21	SWITCH, PUSH (1 KEY) (PROTECT)	
S685	1-572-467-61	SWITCH, PUSH (1 KEY) (CHUCKING IN)	
S686	1-762-621-21	SWITCH, PUSH (1 KEY) (PACK OUT)	
S687	1-572-688-11	SWITCH, PUSH (1 KEY) (PB POSITION)	
S688	1-762-621-21	SWITCH, PUSH (1 KEY) (REC POSITION)	

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		MISCELLANEOUS **************	
154	1-790-106-11	WIRE (FLAT TYPE) (31 CORE)	
155	1-775-170-11	WIRE (FLAT TYPE) (19 CORE)	
⚠163	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
⚠164	1-575-651-21	CORD, POWER (AEP, SP, HK)	
⚠164	1-696-571-11	CORD, POWER (UK)	
⚠164	1-783-531-31	CORD, POWER (US, CND)	
⚠165	1-569-008-21	ADAPTOR, CONVERSION 2P (SP)	
166	1-773-009-11	WIRE (FLAT TYPE) (15 CORE)	
167	1-693-407-21	TUNER (US, CND)	
167	1-693-409-21	TUNER (AEP, UK, SP, HK)	
170	1-790-105-11	WIRE (FLAT TYPE) (25 CORE)	
202	1-660-966-11	OP RELAY FLEXIBLE BOARD	
203	1-782-683-11	WIRE (FLAT TYPE) (14 CORE)	
⚠251	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N (for MD)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
⚠305	8-848-379-31	OPTICAL PICK-UP KSS-213B/K-N (for CD)	
306	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
HR901	1-500-396-11	HEAD, OVER LIGHT (RF325-74A)	
M101	X-4942-405-1	BASE (OUTSART) ASSY (SPINDLE) (for CD)	
M102	X-4917-504-1	MOTOR ASSY (SLED) (for CD)	
M103	A-4411-278-A	MOTOR ASSY (CD LID OPEN/CLOSE)	
M501	1-698-997-11	FAN, D.C.	
M901	A-4672-135-A	MOTOR ASSY, SPINDLE (for MD)	
M902	A-4672-133-A	MOTOR ASSY, SLED (for MD)	
M903	A-4672-134-A	MOTOR ASSY, LOADING (for MD)	
⚠T901	1-433-472-11	TRANSFORMER, POWER (US, CND)	
⚠T901	1-433-473-11	TRANSFORMER, POWER (AEP, UK)	
⚠T901	1-433-474-11	TRANSFORMER, POWER (SP, HK)	

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HARDWARE LIST
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#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#2	7-685-791-09	SCREW +PTT 2.6X5 (S)
#3	7-685-850-04	SCREW +BVTT 2X3 (S)
#4	7-685-871-01	SCREW +BVTT 3X6 (S)
#5	7-685-880-09	SCREW +BVTT 4X6 (S)
#6	7-685-851-04	SCREW +BVTT 2X4 (S)
#7	7-627-552-27	SCREW,PRECISION +P 1.7X2
#8	7-627-852-28	+P 1.7X3
#9	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3
#10	7-621-775-00	SCREW +B 2.6X3

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-922-950-11

Sony Corporation
Home A&V Products Company

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MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.1	2001.02	Correction of Motor (M902, M903) (SPM-01004)
1.0	1998.08	New